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United States Department of Interior
Bureau of Land Management
Rock Springs District, Wyoming
August 1982

Final Decision Record and Environmental Assessment of

COAL

Preference Right Lease Applications

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B4367
1982

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WY-049-EA82-37

DECISION RECORD

I. Title of Proposal: Environmental Assessment of Coal Preference Right Lease Applications for the Beans Spring, Table, and Black Butte Creek Projects.

The projects under consideration are in full compliance with the coal management decisions contained in the Big Sandy and Salt Wells Management Framework Plans completed in April of 1982.

II. Alternatives Considered

A. Alternative No. 1

The proposed action is to further consider issuing preference right coal leases for the subject Preference Right Lease Applications (PRLAs) as identified in the initial showings and the environmental assessment (which includes mitigation measures for the Beans Spring, Table, and Black Butte Creek project proposals).

B. Alternative No. 2

No action (i.e., no mining or coal development).

III. Decision and Rationale

A. Decision

The decision is to accept the proposed actions. The transportation of coal from the Beans Spring and Black Butte Creek Projects is to be by rail along the Patrick Draw-Burley Draw-Gap Creek route. Transportation of coal from the Table Project is to be as noted in the proposed action.

B. Rationale

The environmental assessment (EA) has been prepared in response to the initial showings filed by Ark Land Company for the Beans Spring Project, by Rosebud Coal Sales Company for the Table Project, and Peabody Coal Company for the Black Butte Creek Project. The principal purpose of the EA was to develop mitigation measures that the applicants must consider in preparing their final showings. If it is determined that the Federal coal can be economically developed in an environmentally sound manner in the final showings, the areas will be leased to the holders of the preference right lease applications. The Secretary of the Interior does not have the discretion to consider not issuing a lease for a PRLA that meets final showing.

The three projects encompass approximately 12,355 acres in Sweetwater County, Wyoming. The cumulative impacts of the three projects plus

the Sand Butte Project, which was addressed in a separate EA and is just an extension of the Black Butte Mine, have been determined to not be significant if the respective company adheres to the mitigation measures.

Rail transportation of coal from the Beans Spring and Black Butte Creek Projects would be less disruptive than trucking the coal to a loadout facility along Union Pacific's main rail lines, and less disruptive than at other rail spur locations. Placement of a rail spur in the Patrick Draw-Burley Draw area would also facilitate future coal developments in that part of the Rock Springs Known Recoverable Coal Resource Area.

C. Mitigation

Mitigation measures are attached. They were derived from the EA, the Big Sandy and Salt Wells Management Framework Plans, the Sand Butte Project EA, and the Black Butte Mine lease. These measures are in addition to company-proposed mitigation which is part of the proposed action. It should be understood, since the proposed action at this stage is not an actual plan of mining and reclamation, that some of the attached mitigation measures are subject to change in the course of mining and reclamation plan approval and permitting (e.g., detailed seeding mixtures or other requirements that may result from a more specific plan of development). Movement of any existing facilities will be determined in negotiations between involved parties; the need for further mitigation involving Federal lands will be considered pending those negotiations and permitting procedures. Because of this and because the Office of Surface Mining and the State of Wyoming are principal authorities in mine plan approval and permitting, some of the attached mitigation measures may be deferred to the mine plan approval and permitting stage and, therefore, may not appear as stipulations in the Federal coal lease, if issued. For the purposes of the final showing, however, the applicant must consider all mitigation measures listed and explain how they will be accommodated.

D. Monitoring and Further Studies

Wildlife habitat recovery and replacement programs for each project area will be monitored to assure that efforts to maintain the quality and quantity of the habitat for each affected species are successful. Each monitoring program will be determined on the basis of which habitat recovery and/or replacement methods are selected.

As noted in the EA, Ark Land Company funded a cooperative mule deer census study of the Beans Spring Project area during the winter of 1981-82. The Company has committed to continuation of the study for the next year (winter of 1982-83) and longer if need be. In addition, if and when critical wintering conditions prevail in the study area, Ark has committed to initiating supplemental census flights to determine if and where any true mule deer critical wintering habitat exists within the study area.

MITIGATION MEASURES

Beans Spring Project, Ark Land Company - F314a

W-19187, W-19188, W-19189, and W-19190

IV. Conclusion

Based upon the analysis contained in the Beans Spring, Table, and Black Butte Creek Projects EA and the mitigation measures, I conclude there would be no significant adverse affects to the environment due to the development of the project proposals. The cumulative effects of these proposals are included in the EA and will be further addressed in the upcoming update of the Green River-Hams Fork Regional Coal EIS. Therefore, additional EIS documentation for the project proposals is not required.

Robert W. Buerer
Salt Wells Resource Area Manager

8/11/82
Date

William E. Hanson Jr
Big Sandy Resource Area Manager

8/20/82
Date

Donald H. Sump
Rock Springs District Manager

8/16/82
Date

I concur:

Wayne T. Rummel
Wyoming State Director

9/2/82
Date

western wheatgrass
Bottell's alkaligrass
squirreltail
alkali sacaton
Indian ricegrass
Sandberg bluegrass

Forbs

onion
phlox
erigeron
scarlet globeamallow

(Agropyron smithii)
(Puccinellia airoides)
(Stenotaphrum secundatum)
(Sporobolus airoides)
(Oryzopsis hymenoides)
(Poa annua)

(Allium textile)
(Thalictrum flavum)
(Eriogonum brevicaule)
(Sphaeralcea coccinea)

MITIGATION MEASURES

Beans Spring Project, Ark Land Company - PRLAs
W-19187, W-19188, W-19189, and W-19190

1. Operating areas will be controlled to exclude livestock and big game animals until new vegetation resulting from reclamation is established to the satisfaction of the authorized officer.
2. As determined by the authorized officer, the lessee will develop equal or better water facilities to replace existing water facilities on public lands disturbed or destroyed by mining.
3. The lessee will protect all survey monuments, witness corners, reference monuments, and bearing trees against destruction, obliteration, or damage during operations on the lease areas. If any monuments, corners, or accessories are destroyed, obliterated, or damaged by this operation; the lessee will hire an appropriate county surveyor or registered land surveyor to reestablish or restore the monuments, corners, or accessories, at the same location, using surveying procedures in accordance with the "Manual of Surveying Instructions for the Survey of the Public Lands of the United States"; and will record the survey in the appropriate county records, with a copy sent to the authorized officer.
4. Generally, reclamation of disturbed lands will be accomplished as contemporaneously with mining activities as possible. Spoil will be graded to a slope no steeper than 3 1/2:1 and will be placed carefully to facilitate revegetation efforts. Material size will be reduced to allow seed application and final grading will occur on a contour basis. After grading, a minimum of 10 inches of suitable topsoil will be placed on the spoil, an acceptable seed mixture will be applied, and vegetation will be established.

Proposed plant species from which seed mixtures should be selected for the Beans Spring Project area as follows:

Common Name

Botanical Name

Greasewood/Nuttall's Saltbush Communities

Grasses

western wheatgrass
Nuttall's alkaligrass
squirreltail
alkali sacaton
Indian ricegrass
Sandberg bluegrass

(Agropyron smithii)
(Puccinellia airoides)
(Sitanion hystrix)
(Sporobolus airoides)
(Oryzopsis hymenoides)
(Poa sandbergii)

Forbs

onion
phlox
erigogonum
scarlet globemallow

(Allium textile)
(Phlox hoodii)
(Eriogonum brevicaulle)
(Sphaeralcea coccinea)

Shrubs

winterfat	(<u>Eurotia lanata</u>)
Nuttall's saltbush*	(<u>Atriplex nuttallii</u>)
fourwing saltbush*	(<u>Atriplex canescens</u>)

Sagebrush Community

Shrubs

fourwing saltbush*	(<u>Atriplex canescens</u>)
rubber rabbitbrush*	(<u>Chrysothamnus nauseosus</u>)
antelope bitterbrush	(<u>Purshia tridentata</u>)
big sagebrush*	(<u>Artemisia tridentata</u>)
Douglas rabbitbrush	(<u>Chrysothamnus viscidiflorus</u>)

Forbs

arrowleaf balsamroot	(<u>Balsamorhiza sagitata</u>)
alfalfa	(<u>Medicago sativa</u>)
penstemon	(<u>Penstemon arenicola</u>)
phlox	(<u>Phlox hoodii</u>)

Grasses

intermediate wheatgrass	(<u>Agropyron intermedium</u>)
thickspike wheatgrass	(<u>Agropyron dasystachyum</u>)
bottlebrush squirreltail	(<u>Sitanion hystrix</u>)
needle-and-thread	(<u>Stipa comata</u>)

Juniper-Mountain Shrub Type

Shrubs

antelope bitterbrush	(<u>Purshia tridentata</u>)
big sagebrush*	(<u>Artemisia tridentata</u>)
fourwing saltbush*	(<u>Atriplex canescens</u>)
mountain mahogany	(<u>Cercocarpus montanus</u>)
Douglas rabbitbrush	(<u>Chrysothamnus viscidiflorus</u>)
rubber rabbitbrush*	(<u>Chrysothamnus nauseosus</u>)

Forbs

arrowleaf balsamroot	(<u>Balsamorhiza sagitata</u>)
penstemon	(<u>Penstemon arenicola</u>)
smooth aster	(<u>Aster glaucodes</u>)
alfalfa	(<u>Medicago sativa</u>)

Grasses

western wheatgrass

(Agropyron smithii)

intermediate wheatgrass

(Agropyron intermedium)

thickspike wheatgrass

(Agropyron dasystachyum)

Indian ricegrass

(Oryzopsis hymenoides)

*More successful when established as seedlings.

Consultation with the BLM and Wyoming DEQ will be made prior to finalizing seed mixtures.

5. Cultural Resources--(a) Before undertaking any activities that may disturb the surface of the leased lands, the lessee shall conduct a cultural resource intensive field inventory in a manner specified by the authorized officer of the BLM or the surface managing agency (if different) on portions of the mine plan area and adjacent areas, or exploration plan area, that may be adversely affected by lease-related activities and which were not previously inventoried at such a level of intensity. The inventory shall be conducted by a qualified professional cultural resource specialist (i.e., archeologist, historian, or historical architect, as appropriate), approved by the authorized officer of the surface managing agency (BLM if the surface is privately owned), and a report of the inventory and recommendations for protecting any cultural resources identified shall be submitted to the Regional Director of the Office of Surface Mining (or the District Mining Supervisor if activities are associated with coal exploration outside an approved mining permit area) and the authorized officer of the BLM or the surface managing agency (if different). The lessee shall undertake measures, in accordance with instructions from the Regional Director (or the District Mining Supervisor if activities are associated with coal exploration outside an approved mining permit area), to protect cultural resources on the leased land. The lessee shall not commence the surface disturbing activities until permission to proceed is given by the Regional Director (or the District Mining Supervisor if activities are associated with coal exploration outside an approved mining permit area).

(b) The lessee shall protect all cultural resource properties within the lease area from lease-related activities until the cultural resource mitigation measures can be implemented as part of an approved mining and reclamation plan or exploration plan.

(c) The cost of conducting the inventory, preparing reports, and carrying out mitigation measures shall be borne by the lessee.

(d) If cultural resources are discovered during operations under a lease, the lessee shall immediately bring them to the attention of the Regional Director (or the District Mining Supervisor if activities are associated with coal exploration outside an approved mining permit area), or the authorized officer of the surface managing agency if the Regional Director, or District Mining Supervisor, as appropriate, is not available. The lessee shall not

disturb such resources except as may be subsequently authorized by the Regional Director (or the District Mining Supervisor if activities are associated with coal exploration outside an approved mining permit area). Within two (2) working days of notification, the Regional Director (or the District Mining Supervisor if activities are associated with coal exploration outside an approved mining permit area) will evaluate or have evaluated any cultural resources discovered and will determine if any action may be required to protect or preserve such discoveries. The cost of data recovery for cultural resources discovered during lease operations shall be borne by the surface managing agency unless otherwise specified by the authorized officer of the BLM or of the surface managing agency (if different).

(e) All cultural resources shall remain under the jurisdiction of the United States until ownership is determined under applicable law.

6. Paleontological Resources--(a) Before undertaking any activities that may disturb the surface of any leased lands, the lessee shall contact the Bureau of Land Management to determine whether the authorized officer will require the lessee to conduct a paleontological appraisal of the mine plan and adjacent areas, or exploration plan areas, that may be adversely affected by lease-related activities. If the authorized officer determines that one is necessary, the paleontological appraisal shall be conducted by a qualified paleontologist approved by the authorized officer of the surface managing agency (BLM if the surface is privately owned), using the published literature and, where appropriate, field appraisals for determining the possible existence of larger and more conspicuous fossils of scientific significance. A report of the appraisal and recommendations for protecting any larger and more conspicuous fossils of significant scientific interest on any leased lands so identified shall be submitted to the authorized officer of the surface managing agency (BLM if the surface is privately owned). When necessary to protect and collect the larger and more conspicuous fossils of significant scientific interest on any leased lands, the lessee shall undertake the measures provided in the approval of the mining and reclamation plan or exploration plan.

(b) The lessee shall not knowingly disturb, alter, destroy or take any larger and more conspicuous fossils of significant scientific interest, and shall protect all such fossils in conformance with the measures included in the approval of the mining and reclamation plan or exploration plan.

(c) The lessee shall immediately bring any such fossils that might be altered or destroyed by his operation to the attention of the Regional Director or the District Mining Supervisor, as appropriate. Operations may continue as long as the fossil specimen or specimens would not be seriously damaged or destroyed by the activity. The Regional Director or the District Mining Supervisor, as appropriate, shall evaluate or have evaluated such discoveries brought to his attention and, within five (5) working days, shall notify the lessee what action shall be taken with respect to such discoveries.

(d) All such fossils of significant scientific interest shall remain under the jurisdiction of the United States until ownership is determined under applicable law. Copies of all paleontological resource data generated as a

result of any lease term requirements will be provided to the Regional Director or the District Mining Supervisor, as appropriate.

(e) The cost of any required salvage of such fossils shall be borne by the United States.

(f) These conditions apply to all such fossils of significant scientific interest discovered within any lease area whether discovered in the overburden, or coal seam or seams.

7. The lessee shall make every reasonable effort to avoid, or where avoidance is impracticable, minimize dust problems. The Mining Supervisor may require sprinkling, oiling, or other means of dust control on roads, trails, etc. The lessee shall conduct processing so as to prevent, or if prevention is impossible, minimize to the maximum extent possible, environmental or health problems associated with dust.

8. Overburden stockpiles shall be located so as to avoid or minimize damage to the surrounding lands.

(a) Topsoil. The lessee shall remove the topsoil from the land in a separate layer, replace it on the backfill area, or if not utilized immediately, segregate it in a separate pile from other spoil and, when the topsoil is not replaced on a backfill area within a time short enough to avoid deterioration of the topsoil, maintain a successful cover by quick growing plants or other means thereafter so that the topsoil is preserved from wind and water erosion, remains free of any contamination by other acid or toxic material and is in a usable condition for sustaining vegetation when restored during reclamation. However, if topsoil is of insufficient quantity or of poor quality for sustaining vegetation, or if other strata can be shown to be more suitable for vegetation requirements, then the lessee shall remove, segregate, and preserve in a like manner such other strata which is best able to support vegetation. For the purpose of this section, "topsoil" is defined as the top horizon of overburden containing fertile soil or soil material, usually rich in organic matter and capable of sustaining plant growth and recognized as such by standard authorities.

(b) Subsoil. The lessee shall, in accordance with these stipulations, either stockpile subsoil stripped from excavated areas for later reclamation of the areas, or place it on an available fill surface. For the purpose of this section, "subsoil" is defined as all overburden except topsoil.

9. Recovery of wildlife habitat on the project area shall be required. Through consultation with the Wyoming Game and Fish Department and the Governor's office on coal unsuitability Criterion No. 15, the maintenance of deer habitat over the entire Beans Spring Project Area was identified as being of primary concern. A more detailed analysis of the area and application of exceptions to this criterion resulted in the determination that the project area would be acceptable for coal development subject to the following mitigation:

The lessee would be required to mitigate for mule deer, antelope, sage grouse, and raptor habitat loss and disturbance due to surface mining operations.

Concurrently with the filing of its mine plan, the lessee would submit for approval by the BLM, a habitat recovery and replacement plan designed to protect and/or enhance wildlife habitat for the above-named species.

Mitigation methods may require the lessee to employ techniques for wildlife forage manipulation or intensive wildlife habitat management. Habitat recovery may not be completely feasible in the permit area; therefore, recovery or replacement may be accomplished on lands made available through the surface management agency, the State, or the lessee outside the permit area in combination with recovery and replacement methods on suitable lands within the permit area.

The habitat recovery and replacement plan would include a habitat analysis of the permit area which identifies important wildlife species and habitats.

- (1) A detailed description of the methods selected by the lessee to mitigate habitat loss, together with a comparative analysis of alternate methods which were considered and rejected by the lessee and the rationale for the decision to select the proposed methods. The replacement may include, but is not limited to the following techniques:

- (a) Increasing the quantity and quality of forage available to wildlife.
- (b) The acquisition of wildlife crucial habitats.
- (c) Manipulation of wildlife habitat to increase its carrying capacity for selected wildlife species.
- (d) Recovery, replacement, or protection of important wildlife habitat by selected fencing.

- (2) A timetable giving the periods of time which would be required to accomplish the habitat recovery or replacement plan and showing how this timetable relates to the overall mining plan.

- (3) An evaluation of the final plan by the Wyoming Game and Fish Department. The State would comment on the methods selected and the techniques to be employed by the lessee and may recommend alternate recovery or replacement methods. If the State has recommended an alternate method, the lessee would consider the State's recommendation and, if the lessee rejects the State's plan, the lessee would indicate its reasons as required by provision 2 above. If no State comment is included in the plan, the lessee would verify its consultation with the State and the plan may be considered without State comment.

10. The lessee shall prepare and submit to the BLM concurrently with the filing of its mine plan, a socioeconomic and transportation impact mitigation study,

concerning off-site aspects of the proposed development, which would include a factual statement of the following:

- (1) The estimated number of employees the specific lease operation would require during its phases of construction and operation; the estimated multiplied population attendant to that employment; and where that population is anticipated to reside.
- (2) An analysis of the estimated effect of that population influx upon the county and community infrastructure based on information acquired in consultation with state and local government, and including:
 - (a) the transportation system at the county and local level;
 - (b) the domestic water requirements;
 - (c) the domestic sewage treatment facilities and collection system requirements;
 - (d) the requirements on the educational facilities;
 - (e) the requirements the new population would impose upon the fire and police protection systems;
 - (f) the requirements that the additional population would make on local government service systems, with primary emphasis upon the normal public works of both county and municipal governments;
 - (g) the requirements on the human service system;
 - (h) the requirements imposed upon the parks and recreation system; and
 - (i) an estimate as to the need, by type and amount of housing which the new population would require on a community by community basis.
- (3) A statement of the immediate impacts and long-term effects of mining on transportation facilities within the state, including:
 - (a) the estimated transportation mode(s), route(s), and frequency of trips for the extracted resource;
 - (b) contemplated construction of transportation facilities;
 - (c) the estimated effect of any truck movements on the rate of roadway pavement deterioration, on the design life of the transportation mode, on the level of service repair and on overall safety to the motoring public; and

(d) a discussion of those measures which would or could mitigate impact on those transportation modes such as proper signing, lighting, and design or access to and from public roadway(s).

(4) A statement of the perceived roles and responsibilities of the lessee, the affected local governments, and the State of Wyoming, relating to the technical and financial needs of the affected communities.

11. The lessee shall comply with all valid and applicable laws and regulations of Federal, State, and local governmental authority.

12. The lessee will conduct black-footed ferret inventories in accordance with the guidelines below. In the event that ferret occurrence is identified, the lessee will be required to adhere to any suggested modifications in the mining operation provided by the Fish and Wildlife Service and the BLM.

Black-Footed Ferret Inventory Guidelines

Proposed developments such as coal lease lands, power plant sites, well fields, dam sites, and other major, block-type developments should be surveyed for prairie dogs before the project is approved. If prairie dogs are found on the proposed site, colonies should be mapped on topographic maps and each colony surveyed using recommended Black-Footed Ferret Survey Procedures. Ferret searches should be scheduled as close to actual construction as is reasonable to minimize the possibility of missing ferrets that might move onto the area during the period between completion of surveys and the start of construction. Where project disturbance takes place over a long period of time, such as on a coal site, additional surveys for black-footed ferrets are recommended.

13. Any lease issued for the Beans Spring project will be subject to valid existing rights.

MITIGATION MEASURES

Table Project, Rosebud Coal Sales Company - PRLA W-308923

1. Operating areas will be controlled to exclude livestock and big game animals until new vegetation resulting from reclamation is established to the satisfaction of the authorized officer.
2. As determined by the authorized officer, the lessee will develop equal or better water facilities to replace existing water facilities on public lands disturbed or destroyed by mining.
3. The lessee will protect all survey monuments, witness corners, reference monuments, and bearing trees against destruction, obliteration, or damage during operations on the lease areas. If any monuments, corners, or accessories are destroyed, obliterated, or damaged by this operation: the lessee will hire an appropriate county surveyor or registered land surveyor to reestablish or restore the monuments, corners, or accessories, at the same location, using surveying procedures in accordance with the "Manual of Surveying Instructions for the Survey of the Public Lands of the United States"; and will record the survey in the appropriate county records, with a copy sent to the authorized officer.
4. Generally, reclamation of disturbed lands will be accomplished as contemporaneously with mining activities as possible. Spoil will be graded to a slope no steeper than 3 1/2:1 and will be placed carefully to facilitate revegetation efforts. Material size will be reduced to allow seed application and final grading will occur on a contour basis. After grading, a minimum of 10 inches of suitable topsoil will be placed on the spoil, an acceptable seed mixture will be applied, and vegetation will be established.

Proposed plant species from which seed mixtures should be selected for the Table Project area as follows:

Sagebrush Community

big sagebrush*	(<u>Artemisia tridentata</u>)
Douglas rabbitbrush	(<u>Chrysothamnus viscidiflorus</u>)
shadscale	(<u>Atriplex confertifolia</u>)
winterfat	(<u>Eurotia lanata</u>)
phlox	(<u>Phlox hoodii</u>)
goldenweed	(<u>Haplopappus acaulis</u>)
thickspike wheatgrass	(<u>Agropyron dasystachyum</u>)
needle-and-thread	(<u>Stipa comata</u>)
Indian ricegrass	(<u>Oryzopsis hymenoides</u>)
Sandberg bluegrass	(<u>Poa sandbergii</u>)
squirreltail	(<u>Sitanion hystrix</u>)

Sagebrush Community-Rabbitbrush Subtype

Douglas rabbitbrush	(<u>Chrysothamnus viscidiflorus</u>)
big sagebrush*	(<u>Artemisia tridentata</u>)
horsebrush	(<u>Tetradymia spp.</u>)
shadscale	(<u>Atriplex confertifolia</u>)

phlox	(<u>Phlox hoodii</u>)
curly dock	(<u>Rumex crispus</u>)
Indian ricegrass	(<u>Oryzopsis hymenoides</u>)
thickspike wheatgrass	(<u>Agropyron dasystachyum</u>)
needle-and-thread	(<u>Stipa comata</u>)

Nuttall's Saltbush Community

Nuttall's saltbush	(<u>Atriplex nuttallii</u>)
budsage	(<u>Artemisia spinescens</u>)
winterfat	(<u>Eurotia lanata</u>)
shadscale	(<u>Atriplex confertifolia</u>)
phlox	(<u>Phlox hoodii</u>)
onion	(<u>Allium textile</u>)
sandwort	(<u>Arenaria hookeri</u>)
Indian ricegrass	(<u>Oryzopsis hymenoides</u>)
squirreltail	(<u>Sitanion hystrix</u>)
Sandberg bluegrass	(<u>Poa sandbergii</u>)

Juniper Community

juniper	(<u>Juniperus utahensis</u>)
limber pine	(<u>Pinus flexilis</u>)
ocean spray	(<u>Holodiscus dumosus</u>)
sagebrush*	(<u>Artemisia tridentata</u>)
mountain mahogany	(<u>Cercocarpus montanus</u>)
phlox	(<u>Phlox hoodii</u>)
miners candle	(<u>Cryptantha spp.</u>)
sandwort	(<u>Arenaria spp.</u>)
bluebunch wheatgrass	(<u>Agropyron spicatum</u>)
thickspike wheatgrass	(<u>A. dasystachyum</u>)
Indian ricegrass	(<u>Oryzopsis hymenoides</u>)
Sandberg bluegrass	(<u>Poa sandbergii</u>)

* Most successful when established as seedlings.

Consultation with the BLM and Wyoming DEQ will be made prior to finalizing seed mixtures.

5. Cultural Resources--(a) Before undertaking any activities that may disturb the surface of the leased lands, the lessee shall conduct a cultural resource intensive field inventory in a manner specified by the authorized officer of the BLM or the surface managing agency (if different) on portions of the mine plan area and adjacent areas, or exploration plan area, that may be adversely affected by lease-related activities and which were not previously inventoried at such a level of intensity. The inventory shall be conducted by a qualified professional cultural resource specialist (i.e., archeologist, historian, or historical architect, as appropriate), approved by the authorized officer of the surface managing agency (BLM if the surface is privately owned), and a report of the inventory and recommendations for protecting any cultural resources identified shall be submitted to the Regional Director of the Office of Surface

Mining (or the District Mining Supervisor if activities are associated with coal exploration outside an approved mining permit area) and the authorized officer of the BLM or the surface managing agency (if different). The lessee shall undertake measures, in accordance with instructions from the Regional Director (or the District Mining Supervisor if activities are associated with coal exploration outside an approved mining permit area), to protect cultural resources on the leased land. The lessee shall not commence the surface disturbing activities until permission to proceed is given by the Regional Director (or the District Mining Supervisor if activities are associated with coal exploration outside an approved mining permit area).

(b) The lessee shall protect all cultural resource properties within the lease area from lease-related activities until the cultural resource mitigation measures can be implemented as part of an approved mining and reclamation plan or exploration plan.

(c) The cost of conducting the inventory, preparing reports, and carrying out mitigation measures shall be borne by the lessee.

(d) If cultural resources are discovered during operations under a lease, the lessee shall immediately bring them to the attention of the Regional Director (or the District Mining Supervisor if activities are associated with coal exploration outside an approved mining permit area), or the authorized officer of the surface managing agency if the Regional Director, or District Mining Supervisor, as appropriate, is not available. The lessee shall not disturb such resources except as may be subsequently authorized by the Regional Director (or the District Mining Supervisor if activities are associated with coal exploration outside an approved mining permit area). Within two (2) working days of notification, the Regional Director (or the District Mining Supervisor if activities are associated with coal exploration outside an approved mining permit area) will evaluate or have evaluated any cultural resources discovered and will determine if any action may be required to protect or preserve such discoveries. The cost of data recovery for cultural resources discovered during lease operations shall be borne by the surface managing agency unless otherwise specified by the authorized officer of the BLM or of the surface managing agency (if different).

(e) All cultural resources shall remain under the jurisdiction of the United States until ownership is determined under applicable law.

6. Paleontological Resources--(a) Before undertaking any activities that may disturb the surface of any leased lands, the lessee shall contact the Bureau of Land Management to determine whether the authorized officer will require the lessee to conduct a paleontological appraisal of the mine plan and adjacent areas, or exploration plan areas, that may be adversely affected by lease-related activities. If the authorized officer determines that one is necessary, the paleontological appraisal shall be conducted by a qualified paleontologist approved by the authorized officer of the surface managing agency (BLM if the surface is privately owned), using the published literature and, where appropriate, field appraisals for determining the possible existence of larger and more conspicuous fossils of scientific significance. A report of the appraisal and recommendations for protecting any larger and more conspicuous fossils of significant scientific interest on any leased lands so identified shall be submitted to the authorized officer of the surface managing agency (BLM

if the surface is privately owned). When necessary to protect and collect the larger and more conspicuous fossils of significant scientific interest on any leased lands, the lessee shall undertake the measures provided in the approval of the mining and reclamation plan or exploration plan.

(b) The lessee shall not knowingly disturb, alter, destroy or take any larger and more conspicuous fossils of significant scientific interest, and shall protect all such fossils in conformance with the measures included in the approval of the mining and reclamation plan or exploration plan.

(c) The lessee shall immediately bring any such fossils that might be altered or destroyed by his operation to the attention of the Regional Director or the District Mining Supervisor, as appropriate. Operations may continue as long as the fossil specimen or specimens would not be seriously damaged or destroyed by the activity. The Regional Director or the District Mining Supervisor, as appropriate, shall evaluate or have evaluated such discoveries brought to his attention and, within five (5) working days, shall notify the lessee what action shall be taken with respect to such discoveries.

(d) All such fossils of significant scientific interest shall remain under the jurisdiction of the United States until ownership is determined under applicable law. Copies of all paleontological resource data generated as a result of any lease term requirements will be provided to the Regional Director or the District Mining Supervisor, as appropriate.

(e) The cost of any required salvage of such fossils shall be borne by the United States.

(f) These conditions apply to all such fossils of significant scientific interest discovered within any lease area whether discovered in the overburden, or coal seam or seams.

7. The lessee shall make every reasonable effort to avoid, or where avoidance is impracticable, minimize dust problems. The Mining Supervisor may require sprinkling, oiling, or other means of dust control on roads, trails, etc. The lessee shall conduct processing so as to prevent, or if prevention is impossible, minimize to the maximum extent possible, environmental or health problems associated with dust.

8. Overburden stockpiles shall be located so as to avoid or minimize damage to the surrounding lands.

(a) Topsoil. The lessee shall remove the topsoil from the land in a separate layer, replace it on the backfill area, or if not utilized immediately, segregate it in a separate pile from other spoil and, when the topsoil is not replaced on a backfill area within a time short enough to avoid deterioration of the topsoil, maintain a successful cover by quick growing plants or other means thereafter so that the topsoil is preserved from wind and water erosion, remains free of any contamination by other acid or toxic material and is in a usable condition for sustaining vegetation when restored during reclamation. However, if topsoil is of insufficient quantity or of poor quality for sustaining vegetation, or if other strata can be shown to be more suitable for vegetation requirements, then the lessee shall remove, segregate, and preserve in a like

manner such other strata which is best able to support vegetation. For the purpose of this section, "topsoil" is defined as the top horizon of overburden containing fertile soil or soil material, usually rich in organic matter and capable of sustaining plant growth and recognized as such by standard authorities.

(b) Subsoil. The lessee shall, in accordance with these stipulations, either stockpile subsoil stripped from excavated areas for later reclamation of the areas, or place it on an available fill surface. For the purpose of this section, "subsoil" is defined as all overburden except topsoil.

9. Recovery of wildlife habitat on the project area shall be required. Through consultation with the Wyoming Game and Fish Department and the Governor's office on coal unsuitability Criterion No. 15, the maintenance of 1,040 acres of deer and elk habitat was identified as being of primary concern. After applying the exceptions for Criterion 15, the 1,040 acres would be acceptable for coal development subject to the following mitigation: Concurrent with the filing of its mine plan, the lessee would submit for approval by the BLM, a habitat recovery and replacement plan designed to protect and/or enhance elk and mule deer habitat.

The habitat recovery and replacement plan would include a habitat analysis of the permit area which includes an analysis of the quality carrying capacity of the habitat for mule deer.

(1) A detailed description of the methods selected by the lessee to mitigate habitat loss, together with a comparative analysis of alternate methods which were considered and rejected by the lessee and the rationale for the decision to select the proposed methods. The methods utilized by the lessee for recovery and replacement may include, but are not limited to the following techniques:

(a) Increasing the quantity and quality of forage available to mule deer.

(b) The acquisition of deer and elk crucial habitats.

(c) Manipulation of low quality deer and elk habitats to increase their carrying capacities.

(d) Recovery, replacement, or protection of important deer and elk habitat by selected fencing.

(2) A timetable giving the periods of time which would be required to accomplish the habitat recovery or replacement plan and showing how this timetable relates to the overall mining plan.

(3) An evaluation of the final plan by the Wyoming Game and Fish Department. The State would comment on the methods selected and the techniques to be employed by the lessee and may recommend alternate recovery or

replacement methods. If the State has recommended an alternate method, the lessee would consider the State's recommendation and, if the lessee rejects the State's plan, the lessee would indicate its reasons as required by provision 2 above. If no State comment is included in the plan, the lessee would verify its consultation with the State and the plan may be considered without State comment.

10. In order to protect existing eagle and falcon nests and their associated buffer zones as well as migratory bird habitat, (i.e., pertinent to application of coal unsuitability criteria Nos. 11, 13, and 14), no surface coal mining operations will be allowed on such lands. Any exceptions (if granted) for support facilities (e.g., telephone lines, powerlines, etc.) will be subject to restrictive placement and type or design of facilities, seasonal occupancy, etc., and may be allowed only with prior written permission of the authorized officer. The lands described below are buffer zone areas for eagle and falcon nests and migratory bird habitat known to exist at this time. Since these raptor species may move onto, off of, or elsewhere in the project area, their activities must be monitored to determine changing protection requirements.

T. 22 N., R. 103 W., 6th P.M.

Sec. 4: S 1/2

Sec. 6: SE 1/4

Sec. 8: N 1/2

Sec. 10: W 1/2 NW 1/4, W 1/2 SW 1/4 NW 1/4

11. In order to protect the Cedar Canyon area, which is under consideration for possible designation as an Area of Critical Environmental Concern (ACEC), no surface coal mining operations will be allowed on such lands. Four hundred and sixty (460) of these acres which are described below overlap with the eagle and falcon nests and their associated buffer zones as well as migratory bird habitat.

T. 22 N., R. 103 W., 6th P.M.

Sec. 6: S 1/2

Sec. 8: N 1/2

12. The lessee would prepare and submit to the BLM concurrently with the filing of its mine plan, a socioeconomic and transportation impact mitigation study, concerning off-site aspects of the proposed development, which would include a factual statement of the following:

(1) The estimated number of employees the specific lease operation would require during its phases of construction and operation; the estimated multiplied population attendant to that employment; and where that population is anticipated to reside.

(2) An analysis of the estimated effect of that population influx upon the county and community infrastructure based on information acquired in consultation with state and local government, and including:

- (a) the transportation system at the county and local level;
 - (b) the domestic water requirements;
 - (c) the domestic sewage treatment facilities and collection system requirements;
 - (d) the requirements on the educational facilities;
 - (e) the requirements the new population would impose upon the fire and police protection systems;
 - (f) the requirements that the additional population would make on local government service systems, with primary emphasis upon the normal public works of both county and municipal governments;
 - (g) the requirements on the human service system;
 - (h) the requirements imposed upon the parks and recreation system; and
 - (i) an estimate as to the need, by type and amount of housing which the new population would require on a community by community basis.
- (3) A statement of the immediate impacts and long-term effects of mining on transportation facilities within the state, including:
 - (a) the estimated transportation mode(s), route(s), and frequency of trips for the extracted resource;
 - (b) contemplated construction of transportation facilities;
 - (c) the estimated effect of any truck movements on the rate of roadway pavement deterioration, on the design life of the transportation mode, on the level of service repair and on overall safety to the motoring public; and
 - (d) a discussion of those measures which would or could mitigate impact on those transportation modes such as proper signing, lighting, and design or access to and from public roadway(s).
- (4) A statement of the perceived roles and responsibilities of the lessee, the affected local governments, and the State of Wyoming, relating to the technical and financial needs of the affected communities.

13. The lessee shall comply with all valid and applicable laws and regulations of Federal, State, and local governmental authority.

14. The lessee will conduct black-footed ferret inventories in accordance with the guidelines below. In the event that ferret occurrence is identified, the lessee will be required to adhere to any suggested modifications in the mining operation provided by the Fish and Wildlife Service and the BLM.

Black-Footed Ferret Inventory Guidelines

Proposed developments such as coal lease lands, power plant sites, well fields, dam sites, and other major, block-type developments should be surveyed for prairie dogs before the project is approved. If prairie dogs are found on the proposed site, colonies should be mapped on topographic maps and each colony surveyed using recommended Black-Footed Ferret Survey Procedures. Ferret searches should be scheduled as close to actual construction as is reasonable to minimize the possibility of missing ferrets that might move onto the area during the period between completion of surveys and the start of construction. Where project disturbance takes place over a long period of time, such as on a coal site, additional surveys for black-footed ferrets are recommended.

15. Any lease issued for the Table Project will be subject to valid existing rights.

MITIGATION MEASURES

Black Butte Creek Project, Peabody Coal Company - PRLA W-16431

1. Operating areas will be controlled to exclude livestock and big game animals until new vegetation resulting from reclamation is established to the satisfaction of the authorized officer.
2. As determined by the authorized officer, the lessee will develop equal or better water facilities to replace existing water facilities on public lands disturbed or destroyed by mining.
3. The lessee will protect all survey monuments, witness corners, reference monuments, and bearing trees against destruction, obliteration, or damage during operations on the lease areas. If any monuments, corners, or accessories are destroyed, obliterated, or damaged by this operation; the lessee will hire an appropriate county surveyor or registered land surveyor to reestablish or restore the monuments, corners, or accessories, at the same location, using surveying procedures in accordance with the "Manual of Surveying Instructions for the Survey of the Public Lands of the United States"; and will record the survey in the appropriate county records, with a copy sent to the authorized officer.
4. Generally, reclamation of disturbed lands will be accomplished as contemporaneously with mining activities as possible. Spoil will be graded to a slope no steeper than 3 1/2:1 and will be placed carefully to facilitate revegetation efforts. Material size will be reduced to allow seed application and final grading will occur on a contour basis. After grading, a minimum of 10 inches of suitable topsoil will be placed on the spoil, an acceptable seed mixture will be applied, and vegetation will be established.

Proposed plant species from which seed mixtures should be selected for the Black Butte Creek Project are as follows:

Common Name

Botanical Name

Greasewood/Nuttall's Saltbush Communities

Grasses

western wheatgrass

(Agropyron smithii)

Nuttall's alkaligrass

(Puccinellia airoides)

squirreltail

(Sitanion hystrix)

alkali sacaton

(Sporobolus airoides)

Indian ricegrass

(Oryzopsis hymenoides)

Sandberg bluegrass

(Poa sandbergii)

Forbs

onion

(Allium textile)

phlox

(Phlox hoodii)

erigonum

(Eriogonum brevicaule)

scarlet globemallow

(Sphaeralcea coccinea)

Shrubs

winterfat	(<u>Eurotia lanata</u>)
Nuttall's saltbush*	(<u>Atriplex nuttallii</u>)
fourwing saltbush*	(<u>Atriplex canescens</u>)

Sagebrush Community

Shrubs

fourwing saltbush*	(<u>Atriplex canescens</u>)
rubber rabbitbrush*	(<u>Chrysothamnus nauseosus</u>)
antelope bitterbrush	(<u>Purshia tridentata</u>)
big sagebrush*	(<u>Artemisia tridentata</u>)
Douglas rabbitbrush	(<u>Chrysothamnus viscidiflorus</u>)

Forbs

arrowleaf balsamroot	(<u>Balsamorhiza sagitata</u>)
alfalfa	(<u>Medicago sativa</u>)
penstemon	(<u>Penstemon arenicola</u>)
phlox	(<u>Phlox hoodii</u>)

Grasses

intermediate wheatgrass	(<u>Agropyron intermedium</u>)
thickspike wheatgrass	(<u>Agropyron dasystachyum</u>)
bottlebrush squirreltail	(<u>Sitanion hystrix</u>)

* Most successful when established as seedlings.

Consultation with the BLM and Wyoming DEQ will be made prior to finalizing seed mixtures.

5. Cultural Resources--(a) Before undertaking any activities that may disturb the surface of the leased lands, the lessee shall conduct a cultural resource intensive field inventory in a manner specified by the authorized officer of the BLM or the surface managing agency (if different) on portions of the mine plan area and adjacent areas, or exploration plan area, that may be adversely affected by lease-related activities and which were not previously inventoried at such a level of intensity. The inventory shall be conducted by a qualified professional cultural resource specialist (i.e., archeologist, historian, or historical architect, as appropriate), approved by the authorized officer of the surface managing agency (BLM if the surface is privately owned), and a report of the inventory and recommendations for protecting any cultural resources identified shall be submitted to the Regional Director of the Office of Surface Mining (or the District Mining Supervisor if activities are associated with coal exploration outside an approved mining permit area) and the authorized officer of the BLM or the surface managing agency (if different).

The lessee shall undertake measures, in accordance with instructions from the Regional Director (or the District Mining Supervisor if activities are associated with coal exploration outside an approved mining permit area), to protect cultural resources on the leased land. The lessee shall not commence the surface disturbing activities until permission to proceed is given by the Regional Director (or the District Mining Supervisor if activities are associated with coal exploration outside an approved mining permit area).

(b) The lessee shall protect all cultural resource properties within the lease area from lease-related activities until the cultural resource mitigation measures can be implemented as part of an approved mining and reclamation plan or exploration plan.

(c) The cost of conducting the inventory, preparing reports, and carrying out mitigation measures shall be borne by the lessee.

(d) If cultural resources are discovered during operations under a lease, the lessee shall immediately bring them to the attention of the Regional Director (or the District Mining Supervisor if activities are associated with coal exploration outside an approved mining permit area), or the authorized officer of the surface managing agency if the Regional Director, or District Mining Supervisor, as appropriate, is not available. The lessee shall not disturb such resources except as may be subsequently authorized by the Regional Director (or the District Mining Supervisor if activities are associated with coal exploration outside an approved mining permit area). Within two (2) working days of notification, the Regional Director (or the District Mining Supervisor if activities are associated with coal exploration outside an approved mining permit area) will evaluate or have evaluated any cultural resources discovered and will determine if any action may be required to protect or preserve such discoveries. The cost of data recovery for cultural resources discovered during lease operations shall be borne by the surface managing agency unless otherwise specified by the authorized officer of the BLM or of the surface managing agency (if different).

(e) All cultural resources shall remain under the jurisdiction of the United States until ownership is determined under applicable law.

6. Paleontological Resources--(a) Before undertaking any activities that may disturb the surface of any leased lands, the lessee shall contact the Bureau of Land Management to determine whether the authorized officer will require the lessee to conduct a paleontological appraisal of the mine plan and adjacent areas, or exploration plan areas, that may be adversely affected by lease-related activities. If the authorized officer determines that one is necessary, the paleontological appraisal shall be conducted by a qualified paleontologist approved by the authorized officer of the surface managing agency (BLM if the surface is privately owned), using the published literature and, where appropriate, field appraisals for determining the possible existence of larger and more conspicuous fossils of scientific significance. A report of the appraisal and recommendations for protecting any larger and more conspicuous fossils of significant scientific interest on any leased lands so identified shall be submitted to the authorized officer of the surface managing (BLM if the surface is privately owned). When necessary to protect and collect the larger and more conspicuous fossils of significant scientific interest on any leased lands, the lessee shall undertake the measures provided in the approval of the mining and reclamation plan or exploration plan.

(c) The lessee shall immediately bring any such fossils that might be altered or destroyed by his operation to the attention of the Regional Director or the District Mining Supervisor, as appropriate. Operations may continue as long as the fossil specimen or specimens would not be seriously damaged or destroyed by the activity. The Regional Director or the District Mining Supervisor, as appropriate, shall evaluate or have evaluated such discoveries brought to his attention and, within five (5) working days, shall notify the lessee what action shall be taken with respect to such discoveries.

(d) All such fossils of significant scientific interest shall remain under the jurisdiction of the United States until ownership is determined under applicable law. Copies of all paleontological resource data generated as a result of any lease term requirements will be provided to the Regional Director or the District Mining Supervisor, as appropriate.

(e) The cost of any required salvage of such fossils shall be borne by the United States.

(f) These conditions apply to all such fossils of significant scientific interest discovered within any lease area whether discovered in the overburden, or coal seam or seams.

7. The lessee shall make every reasonable effort to avoid or, where avoidance is impracticable, minimize dust problems. The Mining Supervisor may require sprinkling, oiling, or other means of dust control on roads, trails, etc. The lessee shall conduct processing so as to prevent, or if prevention is impossible, minimize to the maximum extent possible, environmental or health problems associated with dust.

8. Overburden stockpiles shall be located so as to avoid or minimize damage to the surrounding lands.

(a) Topsoil. The lessee shall remove the topsoil from the land in a separate layer, replace it on the backfill area, or if not utilized immediately, segregate it in a separate pile from other spoil and, when the topsoil is not replaced on a backfill area within a time short enough to avoid deterioration of the topsoil, maintain a successful cover by quick growing plants or other means thereafter so that the topsoil is preserved from wind and water erosion, remains free of any contamination by other acid or toxic material and is in a usable condition for sustaining vegetation when restored during reclamation. However, if topsoil is of insufficient quantity or of poor quality for sustaining vegetation, or if other strata can be shown to be more suitable for vegetation requirements, then the lessee shall remove, segregate, and preserve in a like manner such other strata which is best able to support vegetation. For the purpose of this section, "topsoil" is defined as the top horizon of overburden containing fertile soil or soil material, usually rich in organic matter and capable of sustaining plant growth and recognized as such by standard authorities.

(b) Subsoil. The lessee shall, in accordance with these stipulations, either stockpile subsoil stripped from excavated areas for later reclamation of the areas, or place it on an available fill surface. For the purpose of this section, "subsoil" is defined as all overburden except topsoil.

9. Recovery of wildlife habitat on the project area shall be required. Through consultation with the Wyoming Game and Fish Department and the Governor's office on coal unsuitability Criterion No. 15, the maintenance of sage grouse populations and their habitat was identified as being of concern. However, habitat for other game and nongame species is also of some concern. A plan of recovery would be developed in consultation with the authorized officer of the Bureau of Land Management and with the State of Wyoming. The plan shall be basically concerned with sage grouse habitat improvement and development (e.g., watering developments) outside of active mining operation areas and with habitat reclamation, including sagebrush reestablishment, watering developments, etc., on active mining operation areas. The plan should include consideration for other wildlife species and address all portions of the project area. This would include identifying sage grouse use areas and their habitat parameters, and other applicable species; and developing long-term and short-term measures for maintaining grouse populations and reestablishing all required habitat components. The plan would be made a part of a plan of mining and reclamation requiring approval of the authorized officers of BLM and the State of Wyoming.

10. The lessee would prepare and submit to the BLM concurrently with the filing of its mine plan, a socioeconomic and transportation impact mitigation study, concerning off-site aspects of the proposed development, which would include a factual statement of the following:

(1) The estimated number of employees the specific lease operation would require during its phases of construction and operation; the estimated multiplied population attendant to that employment; and where that population is anticipated to reside.

(2) An analysis of the estimated effect of that population influx upon the county and community infrastructure based on information acquired in consultation with state and local government, and including:

(a) the transportation system at the county and local level;

(b) the domestic water requirements;

(c) the domestic sewage treatment facilities and collection system requirements;

(d) the requirements on the educational facilities;

(e) the requirements the new population would impose upon the fire and police protection systems;

(f) the requirements that the additional population would make on local government service systems, with primary emphasis upon the normal public works of both county and municipal governments;

- (g) the requirements on the human service system;
 - (h) the requirements imposed upon the parks and recreation system; and
 - (i) an estimate as to the need, by type and amount of housing which the new population would require on a community by community basis.
- (3) A statement of the immediate impacts and long-term effects of mining on transportation facilities within the state, including:
- (a) the estimated transportation mode(s), route(s), and frequency of trips for the extracted resource;
 - (b) contemplated construction of transportation facilities;
 - (c) the estimated effect of any truck movements on the rate of roadway pavement deterioration, on the design life of the transportation mode, on the level of service repair and on overall safety to the motoring public; and
 - (d) a discussion of those measures which would or could mitigate impact on those transportation modes such as proper signing, lighting, and design or access to and from public roadway(s).
- (4) A statement of the perceived roles and responsibilities of the lessee, the affected local governments, and the State of Wyoming, relating to the technical and financial needs of the affected communities.

11. The lessee shall comply with all valid and applicable laws and regulations of Federal, State, and local governmental authority.

12. The lessee will conduct black-footed ferret inventories in accordance with the guidelines below. In the event that ferret occurrence is identified, the lessee will be required to adhere to any suggested modifications in the mining operation provided by the Fish and Wildlife Service and the BLM.

Black-Footed Ferret Inventory Guidelines

Proposed developments such as coal lease lands, power plant sites, well fields, dam sites, and other major, block-type developments should be surveyed for prairie dogs before the project is approved. If prairie dogs are found on the proposed site, colonies should be mapped on topographic maps and each colony surveyed using recommended Black-Footed Ferret Survey Procedures. Ferret searches should be scheduled as close to actual construction as is reasonable to minimize the possibility of missing ferrets that might move onto the area during the

period between completion of surveys and the start of construction. Where project disturbance takes place over a long period of time, such as on a coal site, additional surveys for black-footed ferrets are recommended.

BUREAU OF LAND MANAGEMENT

13. Any lease issued for the Black Butte Creek Project will be subject to valid existing rights.

FINAL ENVIRONMENTAL ASSESSMENT OF COAL
PREFERENCE RIGHT LEASE APPLICATIONS FOR
BEANS SPRING, TABLE, AND BLACK BUTTE CREEK
PROJECTS

LOCATED IN SWEETWATER COUNTY, WYOMING

WY-048-EA53-37

BUREAU OF LAND MANAGEMENT

HORN SPRINGS DISTRICT OFFICE

August 1981

Cooperating Agencies:

MINERALS MANAGEMENT SERVICE

OFFICE OF SURFACE MINING

U.S. GEOLOGICAL SURVEY

FISH AND WILDLIFE SERVICE

period between completion of surveys and the start of
construction. Where project disturbance is extensive over a long
period of time, such as on a coal site, additional surveys for
baseline data are recommended.

13. Any data collected for the Black River Green Project will be subject to valid
existing rights. The project is not subject to any other laws or regulations.

(E) The project is not subject to any other laws or regulations.

(F) The project is not subject to any other laws or regulations.

(G) The project is not subject to any other laws or regulations.

(H) The project is not subject to any other laws or regulations.

(I) The project is not subject to any other laws or regulations.

(J) The project is not subject to any other laws or regulations.

14. The project is not subject to any other laws or regulations.

15. The project is not subject to any other laws or regulations.

16. Project Description

The project is a proposed development of a new residential area of approximately 100 acres. The project is located in the northern part of the county, near the border with the state of California. The project is a proposed development of a new residential area of approximately 100 acres. The project is located in the northern part of the county, near the border with the state of California. The project is a proposed development of a new residential area of approximately 100 acres. The project is located in the northern part of the county, near the border with the state of California.

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DEPARTMENT OF THE INTERIOR

BUREAU OF LAND MANAGEMENT

FINAL ENVIRONMENTAL ASSESSMENT OF COAL PREFERENCE RIGHT LEASE APPLICATIONS FOR BEANS SPRING, TABLE, AND BLACK BUTTE CREEK PROJECTS

LOCATED IN SWEETWATER COUNTY, WYOMING

WY-049-EA82-37

BUREAU OF LAND MANAGEMENT

ROCK SPRINGS DISTRICT OFFICE

August 1982

Cooperating Agencies:

MINERALS MANAGEMENT SERVICE

OFFICE OF SURFACE MINING

U.S. GEOLOGICAL SURVEY

FISH AND WILDLIFE SERVICE

DEPARTMENT OF THE INTERIOR

BUREAU OF LAND MANAGEMENT

FINAL ENVIRONMENTAL ASSESSMENT OF COAL
PREFERENCE RIGHT LEASE APPLICATIONS FOR
BEANS SPRING, TABLE, AND BLACK BUTTE CREEK
PROJECTS

LOCATED IN SWEETWATER COUNTY, WYOMING

WY-048-EA82-37

BUREAU OF LAND MANAGEMENT
ROCK SPRINGS DISTRICT OFFICE

August 1982

Cooperating Agencies:

MINERALS MANAGEMENT SERVICE
OFFICE OF SURFACE MINING
U.S. GEOLOGICAL SURVEY
FISH AND WILDLIFE SERVICE

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CHAPTER I

DESCRIPTION OF THE ALTERNATIVES INCLUDING THE PROPOSED ACTION

PURPOSE AND NEED

The proposed action is to further consider issuing noncompetitive (preference right) coal leases for 44.9 million tons of Federal coal. The purpose and need of the action are to (1) identify mitigation requirements that must be addressed by the lease applicants in preparing their final showings; and (2) complete, if possible, the processing of the preference right lease applications (PRLAs) in time to be considered in helping to meet the Federal coal leasing target established for the Green River-Hams Fork Coal Region, i.e., prior to the lease sale scheduled for March 1984.

BACKGROUND

Prior to the ***Federal Coal Leasing Amendments Act of August 4, 1976***, a person desiring a coal lease could file a prospecting permit application for an area where coal was not known to exist in economically valuable deposits and, upon demonstrating that the area contained commercially valuable coal, apply for and obtain a noncompetitive (preference right) lease to mine the deposit. The act abolished noncompetitive leasing, subject to valid permits and applications existing at the time of the act. The Department of the Interior's coal policy review subsequent to the act included an assessment of whether the preference right lease applications (PRLAs) complied with filing deadlines and other legal requirements, and an assessment of potential environmental problems. That review resulted in outstanding PRLAs that meet legal and environmental requirements under the act. (See ***Environmental Statement of Federal Coal Management Program***, Department of the Interior 1979, for further details.)

Under the new Federal Coal Management Program, the BLM is now required to complete processing of all outstanding PRLAs by no later than December 1, 1984. Within the BLM Rock Springs District, initial showings have been submitted for a total of eight PRLAs that comprise four separate projects on 17,433 acres in Sweetwater County (Map I-1). As suggested above, it is the BLM's

intent to complete the processing of these PRLAs by early or mid 1983. The companies, their projects' names, and the PRLA serial numbers are as follows:

Ark Land Company—Beans Spring Project (W-19187, W-19188, W-19189, and W-19190)

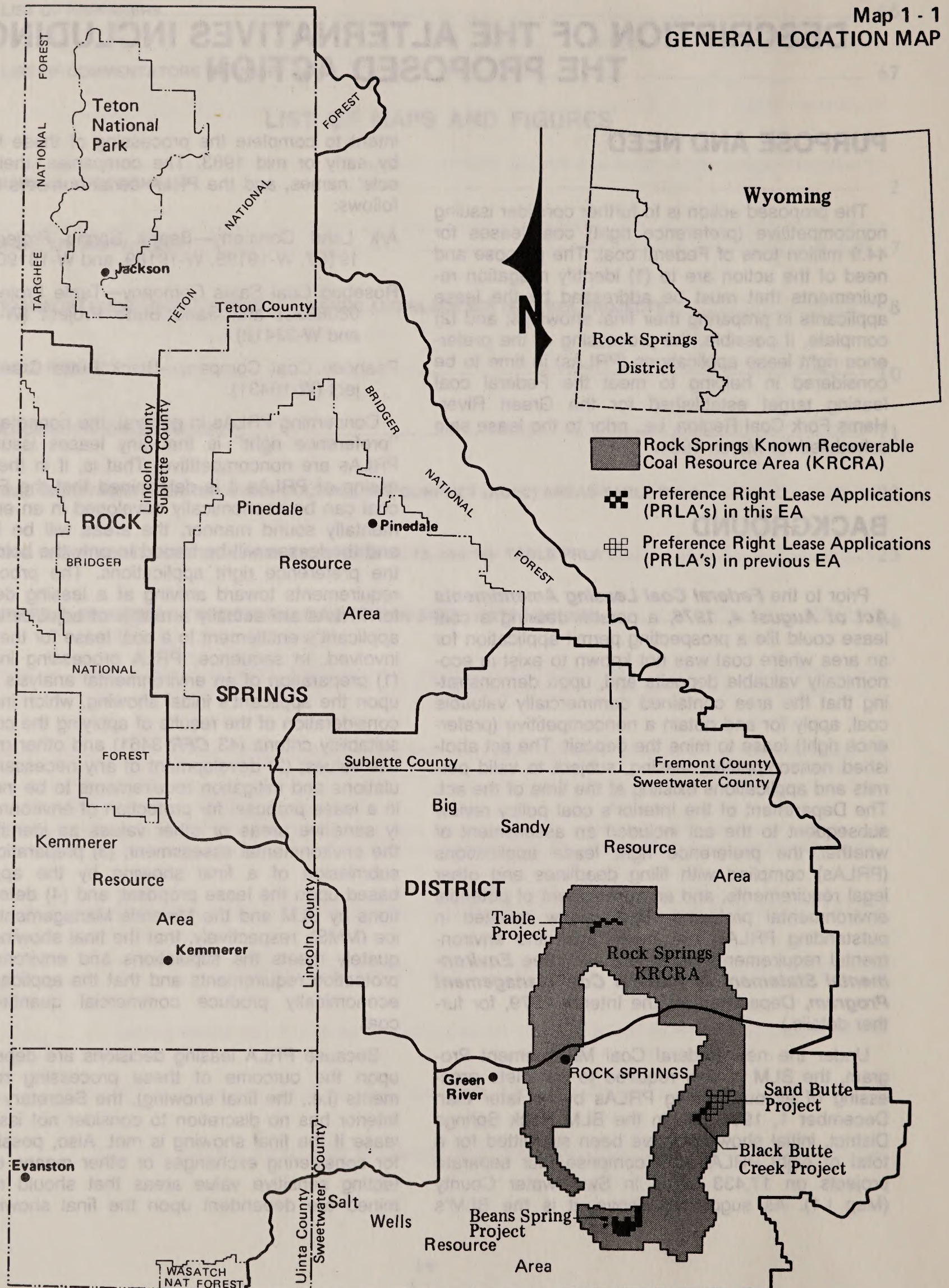
Rosebud Coal Sales Company—Table Project (W-0308923) and Sand Butte Project (W-23411 and W-23412).

Peabody Coal Company—Black Butte Creek Project (W-16431).

Concerning PRLAs in general, the connotation of "preference right" is that any leases issued for PRLAs are noncompetitive. That is, if in the processing of PRLAs it is determined that the Federal coal can be economically developed in an environmentally sound manner, the areas will be leased and the leases will be issued to only the holders of the preference right applications. The processing requirements toward arriving at a leasing decision for PRLAs are actually a matter of adjudicating the applicant's entitlement to a coal lease for the areas involved. In sequence, PRLA processing involves (1) preparation of an environmental analysis based upon the applicant's initial showing, which includes consideration of the results of applying the coal unsuitability criteria (43 ***CFR*** 3461) and other multiple use values; (2) development of any necessary stipulations and mitigation requirements to be included in a lease proposal for protection of environmentally sensitive areas or other values as identified in the environmental assessment; (3) preparation and submission of a final showing by the applicant based upon the lease proposal; and (4) determinations by BLM and the Minerals Management Service (MMS), respectively, that the final showing adequately meets the stipulations and environmental protection requirements and that the applicant can economically produce commercial quantities of coal.

Because PRLA leasing decisions are dependent upon the outcome of these processing requirements (i.e., the final showing), the Secretary of the Interior has no discretion to consider not issuing a lease if the final showing is met. Also, possibilities for considering exchanges or other means of protecting sensitive value areas that should not be mined are dependent upon the final showing re-

Map 1 - 1
GENERAL LOCATION MAP



DESCRIPTION OF THE ALTERNATIVES

sults. Thus, the alternatives that can be addressed in the environmental analysis are limited to the proposed action (coal development) and no action (no mining), as described in Chapter I, *Proposed Actions and No Action Alternative*.

The applicant must demonstrate that commercial quantities of coal have been discovered on the prospecting permit lands within the term of the prospecting permit. If commercial quantities are present in the area and all other requirements are met (43 **CFR** 3430.1), an applicant for a preference right lease is entitled to a noncompetitive lease.

Two criteria must be met (43 **CFR** 3430.1) to satisfy commercial quantities of coal:

1. The coal deposit discovered under the prospecting permit shall be of such character and quantity that a prudent person would be justified in further expenditure of his labor and means with a reasonable prospect of success in developing a valuable mine.
2. The applicant shall present sufficient evidence to show that there is a reasonable expectation that revenues from the sale of the coal shall exceed the cost of developing the mine and extracting, removing, transporting, and marketing the coal. The costs of developing shall include the estimated cost of exercising environmental protection measures and suitably reclaiming the lands and complying with all applicable Federal and State Laws and regulations.

The initial showing as submitted by the applicant shall contain (1) quantity and quality of the reserves; (2) topographic maps showing physical features, drainage patterns, roads and vehicle trails, utility systems, water sources, and details of the proposed development and mining operations; (3) any reclamation plans; and (4) any mitigating measures to lessen the impact from the operation. For more details on the initial showing requirements, see 43 **CFR** 3430.2-1.

After the applicant has completed the initial showing, an environmental assessment (EA) is prepared on the PRLA area. The EA must include consideration of the results of applying the coal unsuitability criteria (43 **CFR** 3461) and other multiple use values. Stipulations and mitigation measures are then developed to protect environmentally sensitive areas identified in the EA. These are included in a lease proposal. On the basis of the lease proposal, the applicant prepares and submits a final showing to BLM and the Minerals Management Service (MMS). The BLM determines whether or not the final showing meets the stipulations and environmental protection requirements, while MMS determines if the applicant can economically produce commercial quantities of coal. If the applicant

is successful in meeting the final showing requirements (43 **CFR** 3430.4), the applicant would be entitled to a coal lease. If the applicant fails to meet the requirements, the application would be rejected and a coal lease would not be issued.

Early in 1981, the Rosebud Coal Sales Company requested that the BLM expedite processing the PRLAs for the Sand Butte Creek Project. The primary reason for the request was that the Federal coal, which would extend the life of the Black Butte Mine by 2.3 years, must be mined within the next 2 or 3 years or it would be bypassed and thus become uneconomical to mine at a later date. A separate EA addressing the Sand Butte Project was prepared during the summer and fall of 1981. The document (WY-044-EA81-43) was reviewed by the public, and no significant impacts were identified. Mining the 5,078 acres would constitute an extension of the existing Black Butte Mine. Required mitigation was provided to the company, which is currently preparing its final showing. See Chapter III for the cumulative impact relationships of this project, the other three PRLA projects, and other development in the area.

The BLM has prepared Site-Specific Environmental Reports (SSERs) on the Beans Spring, Table, and Black Butte Creek projects. The SSERs were developed to analyze the specific impacts on resources and resource values that would result from construction and operation of new mines on the PRLAs. All significant impacts that were identified in the SSERs are presented in this EA. In addition, this EA discusses cumulative impacts that may result from development of these projects combined with past and future projected developments in Sweetwater County. The individual SSERs are available for review in the BLM Rock Springs District Office.

FEDERAL, STATE, AND LOCAL INTERRELATIONSHIPS

The PRLAs considered in the EA are included in the coal management decisions for the Big Sandy and Salt Wells resource areas (BLM, November 13, 1981). The purposes of those planning decisions are to (1) guide the allocation of the Federal coal resource development by both surface and subsurface mining methods; (2) provide a basic resource analysis which can be used in considering areas for new competitive leasing, lease modifications, and emergency leasing and exchanges; and, (3) aid in determining the stipulation and mitigation requirements for future actions that may occur on existing

DESCRIPTION OF THE ALTERNATIVES

nonproducing Federal coal leases or Federal surface-nonfederal coal areas and for processing PRLAs.

BLM has utilized data from the land use plans, the Secretary's unsuitability criteria, the companies' applications, Minerals Management Service (MMS), the Office of Surface Mining (OSM), and field examinations to prepare this EA; to identify mitigation requirements; and to determine, with reasonable probability, that the areas can be reclaimed in accordance with standards.

The development of Federal coal resources is controlled by numerous laws and regulations imposed by Federal, State, and local agencies and authorities. The **Surface Mining Control and Reclamation Act of 1977** (SMCRA) establishes uniform minimum Federal standards for regulating surface mining and reclamation on Federal, state, and private lands; and for assuring adequate protection from environmental impacts of surface mining. The Act also sets forth provisions regarding environmental protection performance standards and the identification of areas unsuitable for surface coal mining operations. The act established the OSM in the Interior Department to enforce the performance standards.

Each lease operator is required to submit a mining and reclamation plan that complies with OSM Regulations and MMS Rules and which demonstrates that non-coal resources will be protected. This plan must be approved by the Assistant Secretary of the Interior, Energy and Minerals, prior to beginning mining operations.

Federal Authorities

BLM, MMS, and OSM have joint responsibility for most of the Federal functions concerning management of Federal coal.

Office of Surface Mining (OSM)

OSM, with concurrence of the surface managing agency (BLM) and MMS, recommends approval or disapproval of a mining and reclamation plan to the Assistant Secretary of Energy and Minerals. Whenever a state has entered into a cooperative agreement with the Secretary of the Interior, pursuant to section 523(c) of SMCRA, the State regulatory authority and OSM will jointly review exploration plans on existing leases and mining and permit applications. Both agencies will recommend approval or disapproval to the officials of the state and department authorized to take final actions on the permit.

OSM has environmental and enforcement functions during operation of the mine, and has primary authority in emergency environmental situations; however, BLM and MMS have emergency authority in cases where OSM inspectors are unable to take action before significant harm or damage will occur.

Bureau of Land Management (BLM)

The BLM develops the special stipulations and mitigation requirements to be included in Federal coal leases and in mining and reclamation plans. These are related to the management and protection of all other resources and the postmining land use of the affected Federal lands. BLM is also responsible for granting various rights-of-way for ancillary facilities, such as access roads, power lines, communication lines, and railroad spurs on public lands.

BLM applies the 20 coal unsuitability criteria (in consultation with OSM, MMS, State government, and other surface-managing agencies) in determining the acceptability of Federal coal lands for mining. BLM is the lead agency in conducting an environmental analysis on Federal coal lease proposals.

Minerals Management Service (MMS)

MMS is responsible for development, production, and coal resource recovery requirements included in the mining permit. It evaluates the coal resources prior to leasing and mining, and supervises operations for all exploration outside the mine permit area. MMS determines whether commercial quantities requirements (43 **CFR** 3430.4-5) have been met in the company's final showing, and works with BLM in determining the adequacy of the initial showing and need for any additional required information.

State and Local Authorities

State of Wyoming regulations and environmental standards are in many cases more stringent than, or are in addition to, the corresponding Federal standards, and are applied to Federal, State, and private lands (30 **CFR** 211.75-77(a)). The provisions of the Wyoming Environmental Quality Act (W.S. 35-11-101 to 35-11-1104, as amended) establish laws and regulations applicable to surface coal mining and reclamation operations on Federal lands per the terms of the Cooperative Agreement between the U.S. Department of the Interior and

DESCRIPTION OF THE ALTERNATIVES

the State of Wyoming under section 523(c) of SMRCA.

The Wyoming Department of Environmental Quality (DEQ) has authority relating to air quality, solid wastes, water quality, and mining and mine-land reclamation. The Land quality Division issues permits and licenses to mine upon approval of a mining and reclamation plan. Mined-land reclamation provisions of the mining and reclamation plan are administered and enforced by the Land Quality Division. The Air Quality Division issues permits to construct coal mines and permits to operate coal mines after approval of applications with regard to plans for monitoring and controlling air contaminants. The Water Quality Division issues permits to construct settling ponds and waste water systems. They also issue NPDES permits for discharging waste water. The Solid Waste Division issues construction fill permits and industrial waste facility permits for solid waste disposal during construction and operation of coal mines.

The Commissioner of Public Lands is responsible for the administration, leasing, and management of lands and minerals owned by the State. Utility lines, roads, and railroad spurs crossing state land require easements from the Commissioner.

Relocation of highways and all utility line crossings of state and Federal aid highways require authorization of the State Highway Department.

Any storage, impoundment, or use of surface or groundwater for mining and coal processing operations requires a permit from the Wyoming State Engineer. Water pipelines and diversion structures that could affect other users also require a permit. The State Engineer can deny water permits where they would conflict with other existing rights or would be harmful to public interests.

The State Historic Preservation Officer (SHPO) is consulted to assure that an undertaking would not cause damage or change the character of a cultural or historic site that is of National Register quality or is a potential nominee to the Register. The SHPO will consult with the agency to either remove or mitigate any effect.

The State Inspector of Mines routinely inspects several times annually each mining operation in the State for compliance with State statutes pertaining to the health and safety of miners. The inspector investigates all fatal or serious accidents at the mines, and any complaints of employees of unsafe working conditions.

The Wyoming Game and Fish Department manages State game and fisheries populations.

City and county regulations generally involve special use permits, zoning variances, or construction permits where applicable. The Sweetwater County

Commissioners have jurisdiction over land use zoning for the county. While county zoning may be ineffective in controlling the use of Federal lands, application of zoning can be within the public interest; e.g., zoning of flood plains or for open space. The county commissioners designate a person to coordinate with Wyoming DEQ the mining and reclamation activities of the county.

Consultation with private landowners would be necessary when private lands would be affected by an action; e.g., coal transportation routes.

PROPOSED ACTIONS

The companies propose that the BLM issue three noncompetitive coal leases, pursuant to 43 *CFR* 3430; totalling 12,355 acres (six PRLAs) that contain Federal coal. This action would occur under the assumption that the applicants will successfully meet the final showing. This would result in the construction of three new surface mining operations. Table I-1 summarizes the proposed actions. Each SSER includes descriptions of surface mining methods and assumed mining operations to be used.

Beans Spring Project (Ark Land Company)

Based on the initial showing submitted by Ark Land Company, a new coal mine would be constructed about 35 miles south of Rock Springs, Wyoming (Map 1-2). Coal would be mined from 8,202 acres of Federal land covered by four PRLAs (see Appendix A for legal descriptions of the PRLAs) and from 5,280 acres of State leases not included in the PLRAs. State of Wyoming coal reserves would be mined concurrently with Federal coal reserves.

Coal would be transported from the mine to the Union Pacific Railroad (UPRR) main line using the preferred route identified in the Beans Spring SSER (see Map 1-3). The railroad spur would begin at a proposed loading facility in section 29, T. 14 N., R. 103 W., and end at a facility located at the UPRR main line in section 30, T. 18 N., R. 99 W. This spur would be approximately 37 miles long.

Table I-1

SUMMARY OF PROPOSED ACTIONS

Proposed Mine	Total Acres In The PRLAs	Type of Mine	Total Recoverable Reserves (million tons)	Mine Life (Years)	Annual Production (million tons)		
					1988	1998	2018
Beans Spring	8,202	Surface	32 <u>1/</u>	32	1.00	1.00	1.0
Table Project	2,233	Surface	15 <u>2/</u>	30	0.50	0.50	0
Black Butte Creek	1,920	Surface	4 <u>3/</u>	9-10	0.25	0	0
TOTAL	12,355		51		1.75	1.50	1.0

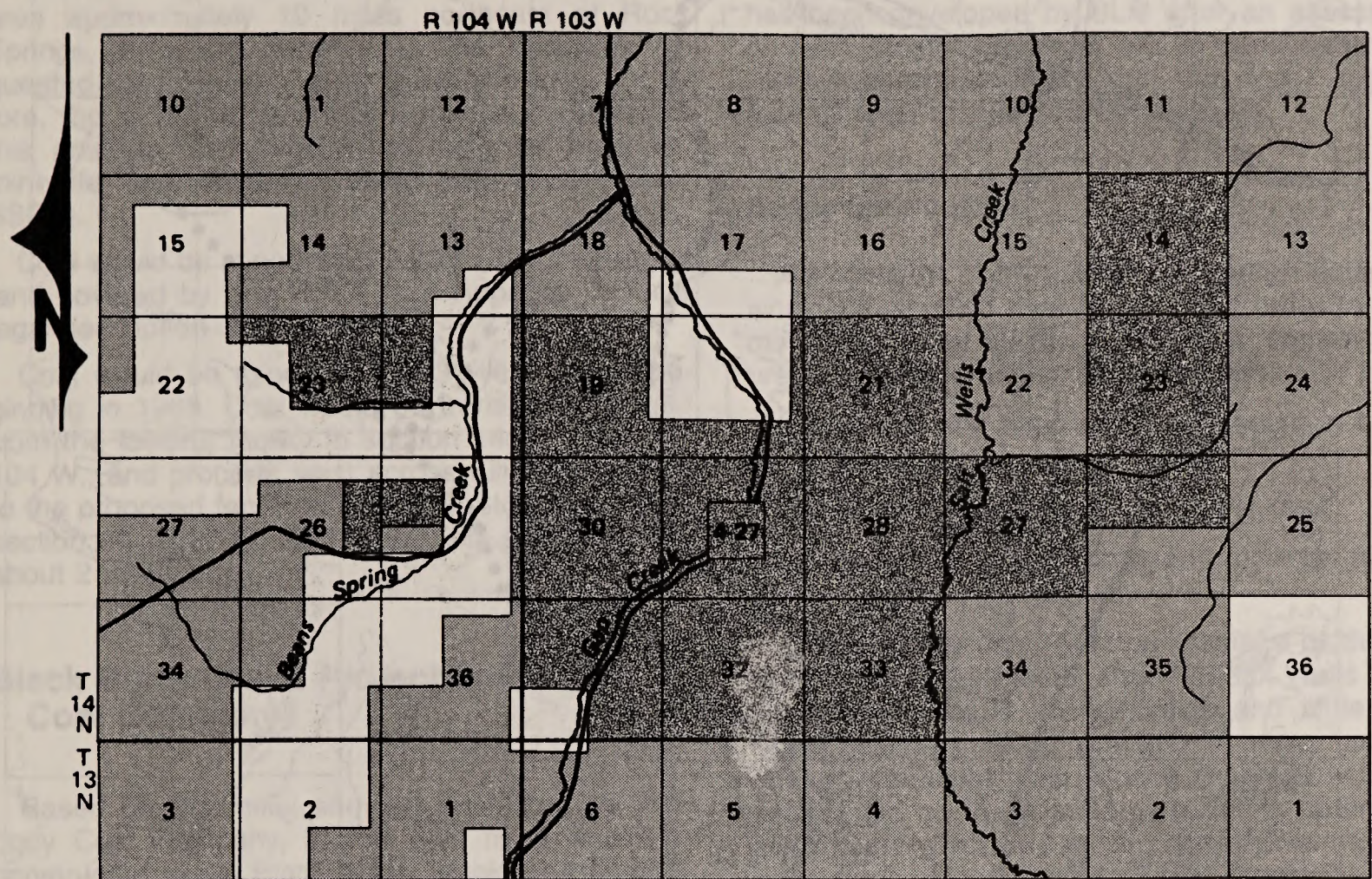
1/ Approximately 26.5 million tons of Federal coal and 5.6 million tons of State coal.



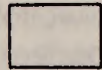
2/ BLM estimated tons of Federal coal.

3/ Approximately 3.4 million tons of Federal coal and 0.5 million tons of private coal.

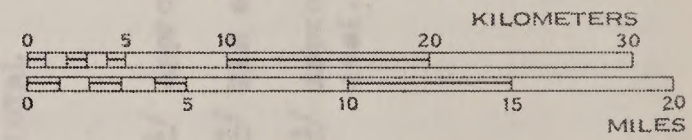
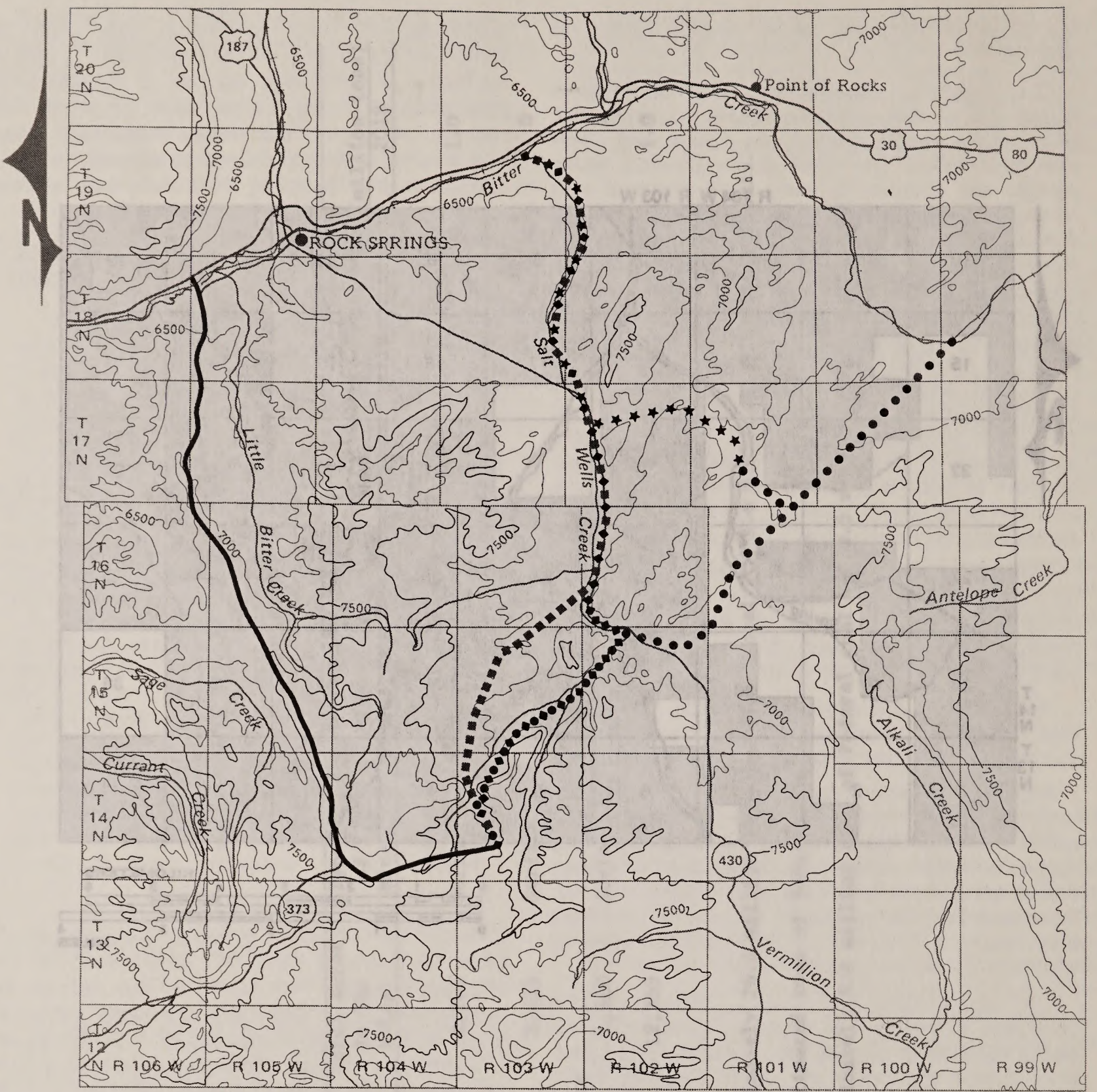
DESCRIPTION OF THE ALTERNATIVES

Table Project (Rabbit) Coal Sales Company



-  PRLA's W-19187, W-19188, W-19189, W-19190
-  Open Federal Minerals
-  Private Minerals

Map 1 - 2
BEANS SPRING PROJECT
Location and Mineral Status



Beans Spring Routes:

- Preferred Rail Route
- ◆◆◆◆◆ Gap Creek Rail Route
- Joyce Creek Rail Route
- Mellor Mountain Haul Route

Black Butte Creek Routes:

- ***** Preferred Rail Route
- Patrick Draw Rail Route
- Patrick Draw Haul Route

DESCRIPTION OF THE ALTERNATIVES

Table Project (Rosebud Coal Sales Company)

Based on the initial showing submitted by Rosebud Coal Sales Company, a new mine would be constructed in the Cedar Canyon and Pine Canyon area approximately 19 miles northeast of Rock Springs, Wyoming (Map 1-4). The company requested confidentiality of its initial showing. Therefore, the BLM has developed, for the purposes of this analysis, assumptions on the coal reserves, mine life, and mining operations (see Table Project SSER).

Coal would be mined from 2,233 acres of Federal land covered by one PRLA (see Appendix A for a legal description of the PRLA).

Coal would be mined over a 30-year period beginning in 1988. Coal would be transported by rail from the loading facility in section 14, T. 22 N., R. 104 W., and proceed west across Killpecker Creek to the proposed facility on the U.S. Steel rail spur in section 20, T. 22 N., R. 104 W. This spur would be about 2 miles long.

Black Butte Creek Project (Peabody Coal Company)

Based on the initial showing submitted by Peabody Coal Company, a new coal mine would be constructed in the Black Butte Creek area approximately 25 miles southeast of Rock Springs, Wyoming (Map 1-5). Coal would be mined from 1,920 acres of Federal land covered by one PRLA (see Appendix A for a legal description of the PRLA), and private coal reserves would be mined concurrently with Federal coal reserves.

Coal would be mined over a minimum period of nine to ten years. Coal would be transported from the mine to the Union Pacific Railroad U.P.R.R. main line using the proposed route identified in the Black Butte Creek SSER (see Map 1-3). The railroad would begin at a proposed loading facility in section 2, T. 17 N., R. 101 W. and end at a facility at the U.P.R.R. line in section 9, T. 19 N., R. 103 W. This route covers approximately 11 miles of Federal and 13 miles of private land.

Company Proposed Mitigation

The following mitigating measures were proposed by the respective company as part of its proposed action to lessen or compensate for the potential adverse impacts of coal development. The impacts

of the proposed actions were analyzed assuming that these measures would be applied and fully effective. Therefore BLM's position is that these measures will be applied. Otherwise the environmental consequences would be subsequently more adverse than what is shown. Additional mitigation that would be required, should a lease be issued, has been developed by BLM after an assessment of each project's impacts and in consultation with various other Federal, State, and local agencies (see Chapter III, *Mitigation Measures*.)

Beans Spring Mine

Air Quality. Air quality monitoring equipment would be installed prior to mining in order to determine existing air quality. Air pollution control measures to be implemented are as follows:

- 1) Extinguish any fires which may occur in the exposed coal.
- 2) Wet haul roads to minimize fugitive dust.
- 3) Utilize enclosed coal storage to minimize air contamination by coal dust.

Water Resources. Surface drainage of the area is provided by four major streams: Salt Wells Creek, Gap Creek, Beans Spring Creek, and Little Basin Creek. Before mining operations begin, an adequate water quality monitoring program would be established on these streams to aid in determining any effects which the mining operations may have on surface water quality. Those tributaries which would be disturbed would be rerouted and the channels designed to provide adequate drainage. Velocity controls would be provided in both existing and relocated channels in order to reduce degradation of the stream beds. Runoff from disturbed areas and water discharged from the pits would be collected and treated in sediment basins. Any seepage from the sediment basins would be monitored in order to determine if it would have a harmful effect on surface water quality.

Where permanent impoundments of water are to be built, the following measures would be followed:

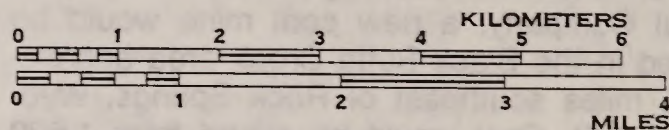
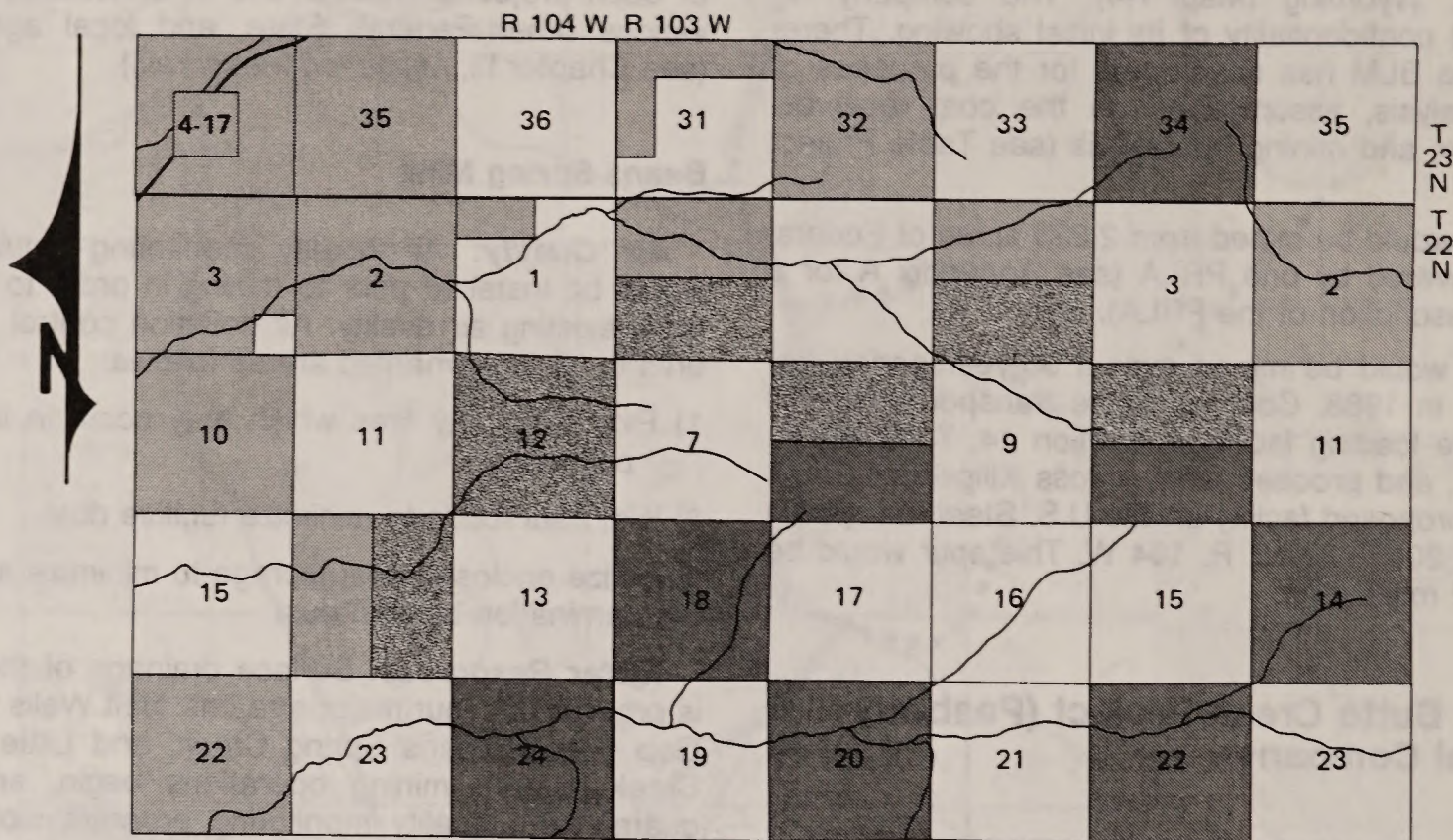
- 1) The impoundment would be adequate for its intended use.
- 2) The impoundment would be designed and built in accordance with sound engineering practices and standards and all applicable Federal and State laws and regulations.
- 3) The quality of the impounded water would be suitable for its intended use and discharges from the impoundment would not unreasonably degrade the water quality of the receiving stream.





DESCRIPTION OF THE ALTERNATIVES

Table Project (Rosebud Coal Sales Company)

Based on the initial showing submitted by Rosebud Coal Sales Company, a new mine would be constructed in the Cedar Canyon and Pine Canyon areas approximately 1.5 miles northeast of Rock Springs, Wyoming (Map 1-4). The company has requested that the BLM review the proposed mine and its potential impacts on the environment.

of the proposed actions were analyzed assuming that these measures would be applied and that the location of the mine is the same as the location shown on the map. Otherwise, the environmental consequences would be substantially more adverse than what is shown. Additional measures that would be required, should a mine be constructed, are being developed by BLM after an assessment of the proposed mine and its potential impacts on the environment.



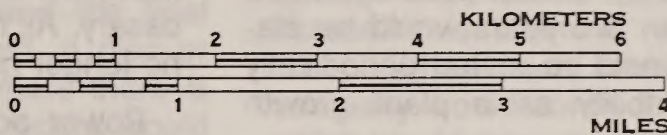
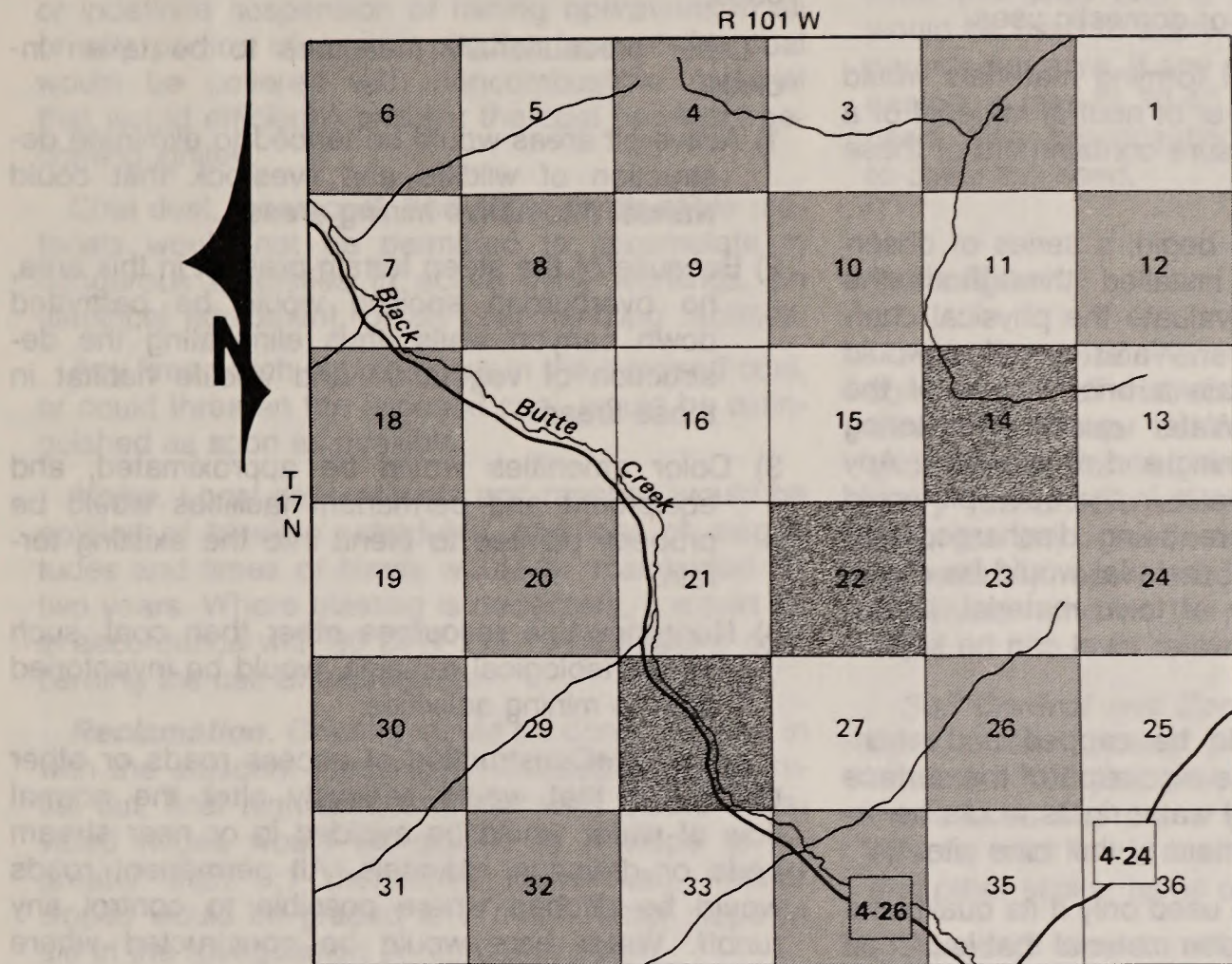
-  PRLA W-308923
-  Existing Coal Leases
-  Open Federal Minerals
-  Private Minerals




Map 1 - 4
TABLE PROJECT
Location and Mineral Status

4) The proposed water project would provide a significant benefit to the area by providing water for proposed water users. Such water improvements would not adversely affect the water resources of the area and the proposed project would be consistent with the water resources plan for the area.

5) Such water improvements would not adversely affect the water resources of the area and the proposed project would be consistent with the water resources plan for the area.

6) The proposed water project would provide a significant benefit to the area by providing water for proposed water users. Such water improvements would not adversely affect the water resources of the area and the proposed project would be consistent with the water resources plan for the area.



-  PRLA W-16431
-  Open Federal Minerals
-  Private Minerals

Map 1 - 5
BLACK BUTTE CREEK PROJECT
Location and Mineral Status

DESCRIPTION OF THE ALTERNATIVES

- 4) Final grading would provide adequate safety and access for proposed water users.
- 5) Such water impoundments would not adversely affect the water resources utilized by adjacent or surrounding landowners for agricultural, industrial, recreational, or domestic uses.
- 6) All toxic, acid or alkali forming materials would be covered with a layer of neutral material of a sufficient depth to ensure containment of these materials.

Before mining activities begin, a series of observation wells would be installed throughout the mining area in order to evaluate the physical characteristics of the aquifers. Water samples would also be collected to obtain a brief history of the ground water quality. Water quality monitoring would continue during mining and reclamation. Any accumulation of ground water in the open pit would be properly treated before being discharged into the surface drainages. Fill material would be evaluated so that the quantity of toxic material, if any, placed below the ground water level can be kept at a minimum.

All existing wells would be capped and abandoned or left for use at the discretion of the surface owners, BLM, or MMS. All water rights would be relinquished upon abandonment of the mine site.

Soils. Topsoil would be used only if its quality exceeds that of the overburden material that is placed on the graded surface. Any topsoil piles expected to be in place longer than two years would be stabilized by seeding and would be tested periodically to ensure continuing viability as a plant growth medium.

Overburden drilling and analysis would be done before mining commences in conformance with all State and Federal regulations. If any toxic or acid-forming material is found in the overburden, it would be buried to prevent any leaching. Overburden analysis would include the following parameters:

pH	Saturated soil paste
E.C.	Electric Conductivity
C.E.C.	Cation Exchange Capacity
S.A.R.	Sodium Absorption Ratio
Texture Saturation Percentage	
B	Boron
Se	Selenium
Pb	Lead
As	Arsenic

Protection of Wildlife and Other Natural and Scenic Resources. Environmental inventories would be conducted to determine existing conditions so that reclamation activities can be geared to approximate these previous conditions and land uses.

Other precautionary measures to be taken include:

- 1) Active pit areas would be fenced to eliminate destruction of wildlife and livestock that could wander into active mining areas.
- 2) Because of the steep terrain present in this area, no overburden spoiling would be permitted down canyon walls; thus eliminating the destruction of vegetation and wildlife habitat in those areas.
- 3) Color amenities would be approximated, and equipment and permanent facilities would be properly painted to blend into the existing terrain.
- 4) Nonrenewable resources other than coal, such as archeological remains, would be inventoried prior to mining activities.

Land Use Construction of access roads or other travelways that would seriously alter the normal flow of water would be avoided in or near stream beds or drainage channels. All permanent roads would be ditched where possible to control any runoff. Water bars would be constructed where BLM, OSM, and the State determine they are necessary. All roads would be reclaimed when they are no longer needed in the mining operation.

Power poles would be removed upon abandonment. Holes would be conditioned for abandonment in accordance with MMS and State standards. All debris would be removed and disposed of at a suitable location. Drill cuttings would be used to backfill the holes whenever practical; any excess would be scattered. Any disturbed area would be regraded and reseeded to prevent soil erosion. Power line access roads would be graded, drained, and revegetated in accordance with the approved mining plan.

Removal of equipment and structures related to the mining operations would commence upon completion of all mining operations.

All debris would be removed and disposed of at a suitable location. Areas affected by these support structures would be graded, drained, and revegetated in accordance with approved reclamation procedures.

Fire Protection. All company equipment would be equipped with fire-fighting materials, and all personnel would attend to their prescribed duties in a

DESCRIPTION OF THE ALTERNATIVES

manner complementary to sound fire prevention practices.

Accumulation of slack coal or combustible waste would be stored in a location and manner not to be a fire hazard to the coal deposit. Upon completion or indefinite suspension of mining operations in all or any portion of a strip pit, the face of the coal would be covered with noncombustible material that would efficiently prevent the coal bed from becoming ignited.

Coal dust, loose coal, and other combustible materials would not be permitted to accumulate in dangerous quantities in active mine workings, on electrical equipment, or on coal handling facilities.

Any fires which should occur in the exposed coal, or could threaten the exposed coal, would be extinguished as soon as possible.

Noise. Local governments and ranches would be notified of blasting schedules, and logs of magnitudes and times of blasts would be maintained for two years. Where blasting is necessary, it would be in accordance with 30 **CFR** 715.19 regulations concerning the use of explosives.

Reclamation. Grading would be done to blend in with the adjacent topography. Outcrops of the initial cut, final highwalls, and the ends of the excavated ridges would be graded to a slope of no greater than 3:1 (horizontal to vertical). Interior slopes would be graded to a much flatter slope to aid in the revegetation portion of this plan.

After rough grading is completed and the final contours are established and approved, a disc or chisel plow would be used in areas where there is extreme compaction or crusting. Next, topsoil would be spread over the graded area with earth moving equipment. This final grading would consist of small rolls along with terraces to reduce the velocity of runoff, minimizing erosion and maximizing infiltration and moisture retention.

Soil samples as previously discussed would be taken on reclaimed surface and reclamation test plots. Fertilization and mulching would be used if deemed appropriate or necessary by the authorizing officer to augment seeding.

Reclamation test plots would be established under various conditions to ensure the best reclamation techniques. Non-indigenous species would be introduced if studies produce evidence that species would provide superior cover. Plant species to be used are as follows:

Shrubs	Fourwing Saltbush
Grasses	Western Wheatgrass
	Thickspike Wheatgrass
	Indian Ricegrass

Legume

Yellow Sweetclover

Seeding times would be in early spring and fall. After the seed bed is prepared a rangeland drill would be used to apply the seed at a rate of 15-20 pounds per acre. If any areas need the seed broadcasted, a rate of 30-40 pounds per acre would be used. After broadcasting, a harrow would be used to cover the seed.

Table Mine

Fire Prevention and Control. Rosebud would comply with all instructions and directions of the Mining Supervisor concerning the use, prevention, and suppression of fires. Rosebud would make every reasonable effort to prevent, control, and suppress any fires on the subject land, and would immediately report uncontrolled fires to the Mining Supervisor and/or the Bureau of Land Management.

Soil Control and Conservation. Rosebud would base erosion control plans and procedures on a maximum 100-year precipitation event for the area. Procedures and plans should consider flash flood effects, mud flows, mudslides, landslides, rock falls, and other similar types of mass movements.

Rosebud would, where possible, avoid areas having soils that are susceptible to slides and slips, excessive settlement, severe erosion, and soil creep. When such areas cannot be avoided, the company would conduct all operations in a manner which would ensure maximum stability.

During exploration, Rosebud would minimize the amount of off-road travel that could disrupt the surface and cause potential erosion.

Protection From Water Pollution. Rosebud would utilize and operate all devices in such a way as to avoid or, where avoidance is impracticable, minimize water pollution.

During the proposed mining operations, surface water would be intercepted where necessary by diversion ditches, and conveyed by stable channels or other means to natural or prepared water courses.

Hazards to Public Health and Safety. After abandoning the project, the company would take necessary precautions to ensure that all potential hazards have been eliminated.

Toxic Material. Rosebud would ensure that all toxic material that could cause a fire, safety, or health hazard, would be promptly treated or dis-

DESCRIPTION OF THE ALTERNATIVES

posed of in a manner which would eliminate further harm.

Reclamation. Rosebud would restore the mined areas after the removal of coal as soon as areas become available for permanent grading and revegetation. All final grading is designed to blend into the surrounding area and to ensure proper drainage into the natural drainage system.

In addition to restoring mined areas for domestic livestock grazing, wildlife habitat would also be considered in all phases of reclamation. The revegetation of the disturbed area would be accomplished by modern farming techniques. After grading and topsoiling has been accomplished, the area would be disced to break large clods and to mix the topsoil with the underlying material to aid in holding it in place. Seed bed preparation would then further break clods and firm the seed bed. Small ridges may then be made, depending on the specific site, to aid in moisture retention and snow accumulation. These ridges would be placed perpendicular to the prevailing wind and on the contour of the slope whenever possible. In addition, other attempts would be made to retain and accumulate moisture; e.g., snowfence, shrubs, etc. All seeding, disking, topsoiling, and other seed bed preparation would be done on the contour whenever possible.

If the need arises that newly reclaimed areas need protection from wildlife or livestock grazing during critical periods of establishment, measures would be taken to accomplish this.

Noxious weeds that are determined to be detrimental to the reclamation plan would be controlled to decrease their invasion to outlying areas.

Black Butte Creek Mine

Air Quality. Most roadways servicing mining operations would be unpaved and dust would be abated with water sprays from tank trucks equipped with built-in sprinklers. Drill cuttings and associated dust ejected with the compressed air stream from the rotary drills would be substantially reduced with cyclone collectors.

Conveying, crushing, and screening processes would be covered to reduce emissions. Loading and unloading would be accomplished with a minimum of material free fall, while open truck or rail car losses can be reduced if necessary by spraying the payload. Water or possibly chemical spray binders may be considered.

Should coal storage be required, dust would be suppressed by covering the storage pits and rolling the coal down the sloping face of the pile rather than by dropping it any appreciable height, thus reducing the generation of fine dust.

Topography. Final grading would produce a gentle rolling topography; slopes are generally not greater than 4:1; with the exception of the high walls, which are usually graded to slopes not greater than 20 degrees and covered with soil material to eliminate exposed coal and to facilitate revegetation.

Water Resources. Water resources of the area would be protected from adverse impact of mining or reclamation operations by measures designed to regulate surface flow; to provide ground water recharge; and to prevent pollutants leached from mine backfill or plant wastes from entering these water systems and threatening human and animal health or safety.

Surface water runoff would be controlled by using diversion ditches, detention ponds, and suitable reclaimed land contouring. Since the volume of natural water entering the area can be variable, these control features would minimize erosion and sedimentation and protect downstream uses. Settling ponds would provide water for wildlife and livestock should the water prove to be of acceptable quality.

Wells required for any mining operations would be spaced and operated to prevent interference with each other and with existing wells. Wells would be designed and constructed to provide a positive seal through the upper layers of overburden and coal to preclude possibility of seepage of water from mine operations into the well and thence into the deeper formation.

Waste materials would be transported to mine sites for disposal. Depending on the analysis, such wastes would be suitably located within the mine spoils to prevent any detrimental constituents from penetrating into the underlying and surrounding material. The wastes would be buried and covered to minimize surface flow over the disposal areas.

Measures would be taken to detect pollution of water include periodic sampling of well and stream water and analysis of samples for changes in total dissolved solids (TDS) which might be detrimental to water quality. If contamination should occur, drainage facilities could be installed to collect seepage water and minimize flow into the surrounding areas.

Soils. Reduced erosion potential would be insured by minimizing the land area that is disturbed at any one time. This can best be accomplished by reclamation immediately following mining and avoiding unnecessary disturbance around the mine. Topsoil removal prior to mining or construction would be restricted to exposure of large bare areas and lengthy storage of topsoil.

DESCRIPTION OF THE ALTERNATIVES

Erosion of the fine-textured soils and spoils would be reduced by such measures as temporary vegetative cover on the topsoil storage areas, prompt elimination of steep spoils slopes, contour furrowing or pitting of leveled spoils to control runoff, and application of mulches if necessary to establish vegetation cover.

Visual Resources. Land disturbances would be largely mitigated by reclamation and revegetation of the site; while at termination of mining operations, the buildings, structures, utilities, and transportation corridors would be removed to return the sites to a state harmonious with the area surroundings.

Land Use. Traffic would be confined to specific corridors, and the design of any roads and culverts would conform with applicable county regulations and Wyoming State Highway Department standards.

Electric power lines would be constructed along road right-of-way to provide a corridor of activity and to limit land area impacts.

Noise. Local governments and ranches would be notified of blasting schedules, and logs of magnitudes and times of blasts would be maintained for two years.

Reclamation. All suitable topsoil would be removed from the disturbed areas, stockpiled, and then applied to the graded areas by the same equipment. Wherever possible, topsoil would be taken directly from new areas of operation to the graded spoils being reclaimed. If stockpiled for more than two years, the topsoil piles would be vegetated to control erosion.

Overburden materials would be tested prior to and during mining operations to find suitable non-toxic materials to supplement the thin topsoil. Suitable overburden material would be stockpiled along with the topsoil for later distribution over the spoils. Any potentially harmful overburden or waste materials would be buried well below the root zone to prevent surface exposure.

Grading of the displaced overburden would begin after three cuts are made. Only two spoil ridges parallel to the open pit would be ungraded at any one time. After grading the spoils and redistributing topsoil, any severely compacted areas would be chiseled or otherwise broken up so that root penetration or permeability is not seriously affected. Fertilizer would be used to compensate for any nutrient deficiencies found in the resultant seed bed.

Vegetation species adaptation studies would be made soon after mining has started so that those species best adapted to the surface-mined soil material can be used. Forb and shrub species may be included to initiate the development of appropriate big game browse. Seed mixture would include forb

species which would survive beyond the first few years of planting. Depending upon seed availability, the following are considered as possibilities; cicer milkvetch (*Astragalus cicer*), green needlegrass (*Stipa viridula*), slender wheatgrass (*Agropyron trachycaulum*), and winterfat (*Eurotia lanata*). Shrubs such as bitterbrush (*Purshia tridentata*) and sagebrush could be introduced into the reseeded areas to provide natural seed sources if viewed as desirable in terms of long-range goals. If necessary, programs would be instituted to control undesirable weeds, such as cheatgrass and summer cypress. If needed, temporary fences would be erected to prevent use of recently seeded areas (2-5 years) by big game and livestock.

ASSUMPTIONS AND ANALYSIS GUIDELINES

The BLM assumed in each SSER the most probable route and mode of coal transportation for the proposed action. Additional transportation systems for each SSER were identified using alternative routes and modes of transportation. See proposed action section of this chapter for descriptions of the proposed transportation alternatives.

Assumptions for the SSERs have been made by BLM to assist in making determinations of impacts of proposed actions and route (see Table I-2). The mining operations and associated facilities located within the project areas are not included in the rights-of-way; thus the impacts of the transportation systems would be those that occur outside the project areas.

If a rail spur is used for coal transportation on any PRLA, then a right-of-way (ROW) of 200 feet would be required for construction and maintenance of that spur. An estimated 55 feet in width of this ROW would be disturbed over the long term.

If a haul road is used for coal transportation on any PRLA, then a ROW of 150 feet would be required for construction and maintenance of that haul road. An estimated 75 feet in width of this ROW would be disturbed over the long term. If a conveyor system is used on the Beans Spring PRLAs disturbance would be approximately 15 feet in width for the conveyor and walk-way. An access road to the conveyor would cause an additional disturbance of 25 feet in width.

Table I-2
ASSUMPTIONS

Project	Rail Cars Filled Per Day ^{1/}	Shipments Per Year	Truck Loads Per Day ^{4/}	Disturbance in Acres		
				From Mining Operations ^{5/}	Total	On Preferred ROW Long-Term
Beans Spring	29	122 ^{2/}	110	4,700	897	247
Table	16	61 ^{2/}	60	2,233	48	26
Black Butte Creek	6	73 ^{3/}	27	600	364	100

^{1/} An average rail car holds 92 tons.

^{2/} Assuming a unit train contains about 100 cars.

^{3/} Assuming a unit train contains about 30 cars.

^{4/} Assuming each truck can carry 25 tons of coal per trip.

^{5/} Includes mine facilities and associated facilities within the PRLA area.

DESCRIPTION OF THE ALTERNATIVES

NO ACTION ALTERNATIVE

The only alternative to the proposed action that can be addressed at this time is the possibility that the permit areas would not be mined (no action). This is due to the PRLA processing requirements and lack of Secretarial discretion to consider not issuing a lease for a PRLA that meets final showing requirements. The principal purpose of this document is to develop stipulations and mitigation requirements that the applicant must consider in preparing his final showing. Thus, any other possible alternatives to mining the areas are dependent upon the result of the final showing.

There are two situations that could occur that would cause the areas to not be mined:

1. If a company fails to show that commercial quantities of coal can be economically produced on its permit(s), preference right lease application would be rejected; a lease would not be issued; and that area would not be mined.
2. In the event a company's final showing is successful, but sensitive value areas that should not be mined are identified; two possibilities could result:
 - a. An exchange of the sensitive areas could be negotiated for either other minerals of comparable value in other areas, or for future Federal coal lease bidding rights in other areas.
 - b. Lacking any other authority to protect the sensitive areas, the Secretary could request the Congress for legislation to purchase the company's interests.

Either of these possibilities could result in partial or total exclusion of mining.

By addressing only the worst case impact (i.e., the proposed action) and the least case impact (no mining) situations, any resulting variation of impact levels between and including the extremes is covered.

OTHER ALTERNATIVES CONSIDERED BUT NOT INCLUDED

No other alternatives were identified as appropriate at this time. Any other possible alternatives to mining the areas are dependent upon the results of each company's final showing.

ALTERNATE TRANSPORTATION SYSTEMS

Additional transportation systems were identified as supplements to the proposed alternative for each SSER. These systems were analyzed to determine the impacts of an alternate mode and/or location of transportation, not as an alternative to mining an area. The acres disturbed by each mining operation and its associated facilities would be the same for these alternate transportation systems.

Beans Spring Project

Four additional transportation systems were identified as supplements to the proposed alternative (Map 1-3). Table I-3 gives a comparison of the coal transportation ROW acreages and estimated disturbance resulting from each alternative. The conveyor alternative could be combined with any of the rail transportation alternatives.

Gap Creek Alternative

Under this alternative, coal would be transported using a railroad spur from the proposed mine loading facility (section 29, T. 14 N., R. 103 W.) north to the proposed loading facility at the UPRR in section 9, T. 19 N., R. 103 W (Map 1-3). This railroad spur would cover 22 miles of Federal, 14 miles of State, and 4 miles of private land (Table I-3).

Joyce Creek Alternative

Coal transportation for this alternative would be accomplished through a railroad spur from the proposed mine loading facility (section 29, T. 14 N., R. 103 W.), north to the proposed loading site at the UPRR in section 9, T. 19 N., R. 103 W. (Map 1-3). This railroad spur would cover 23 miles of Federal, 12 miles of private, and 4 miles of State land (Table I-3).

Mellor Mountain Alternative

A truck haul route would be the sole means of coal transportation. The proposed route would extend from the loading facility (section 29, T. 14 N., R. 103 W.); southwesterly on the existing road to the intersection in section 31, T. 14 N., R. 103 W.; then northwest to the intersection at Beans Spring Creek; and continue westerly to Wyoming State Highway 191. Trucks would then travel north

Table I-3
ACREAGE CONTAINED IN ROWs AND ESTIMATED DISTURBANCE PER ALTERNATIVE
BEANS SPRING PROJECT

Alternative	Federal Acres		State Acres		Private Acres		Total	
	ROW	Disturbed	ROW	Disturbed	ROW	Disturbed	ROW	Disturbed
Preferred	509	140.0	97	26.7	290.8	80.0	896.8	246.7
No Action	0	0	0	0	0	0	0	0
Gap Creek	533.2	146.7	97	26.7	339.4	93.3	969.6	266.7
Joyce Creek	557.6	153.3	97	26.7	290.8	80.0	945.4	260.0
Mellor Mountain ^{1/}	127.3	63.3	97	13.6	9.1	4.5	163.7	81.7
Conveyor ^{2/}	42.2	10.6	38.6	9.6	0	0	80.8	20.2

^{1/} Acreage figures include only the dirt haul road, no allowance is made for existing primary roads.

^{2/} This ROW represents acres that would not be included in the ROW or disturbance if the alternative is implemented.

DESCRIPTION OF THE ALTERNATIVES

on Highway 191 to Interstate 80 (Map 1-3). The unpaved portion of this route would cover seven (7) miles of Federal, one and one-half (1.5) miles of State, and one-half (0.5) mile of private land (Table I-3). Approximately 30 miles of the haul route would be on Highway 191.

Conveyor Alternative

Under this alternative the proposed loading facility in section 29, T. 14 N., R. 103 W. would be moved to the south-half of section 6, T. 14 N., R. 103 W. A conveyor would transport coal from section 29 northward along the existing road in Gap Creek to the loading facility in section 6. Implementation of this alternative would reduce the disturbance in Gap Creek through the use of existing roads, narrower ROW (see *Assumptions and Analysis Guidelines*), and relocation of the loading facility and associated railroad loop out of the valley floor. Disturbance from the loading facility and railroad loop would be approximately equal in either section 6 or 29, although section 6 has been determined to be a less sensitive area. Table I-3 shows the decrease in disturbance that would result from using alternative 4 in conjunction with one of the proposed railroad transportation routes.

Table Project

Haul Alternative

Under this alternative, coal would be transported by truck over the same route as the proposed railroad spur. This route would disturb a total of 36 acres of Federal and private land (18 acres of each).

Black Butte Creek Project

Two additional transportation systems were identified as supplements to the proposed alternative (Map 1-3). Table I-4 gives a comparison of the coal transportation ROW acreages and estimated disturbance resulting from each alternative.

Patrick Draw Rail Route Alternative

Under this alternative coal would be transported using a railroad spur from the proposed mine loading facility (section 21, T. 17 N., R. 101 W.) northeast to a proposed loading facility at UPRR on Bitter Creek in section 30, T. 18 N., R. 99 W. (Map 1-3). This railroad spur would cover 11 miles of

Federal and 4 miles of private land (Table I-4). No State land would be involved.

Patrick Draw Haul Route Alternative

This alternative would utilize the same route identified under the rail route alternative, but use trucks instead of rail cars to transport the coal. This route would result in little or no additional disturbance from upgrading existing county roads (4-24 and 4-26) and cover 11 miles of Federal and four miles of private land (Map 1-3).

Combined Projects

Beans Spring - Black Butte Creek Alternative

The Beans Spring preferred route and Black Butte Creek Patrick Draw rail route intersect at section 35, T. 17 N., R. 101 W. and proceed northeast along Patrick Draw to the same proposed loading facility (Map 1-3). A rail system using these combined routes would localize impacts and the companies would be able to share expenses on the 11 miles of track and facilities that they would have in common.

COAL UNSUITABILITY CRITERIA AFFECTING THE PROPOSED ACTIONS

Some of the coal unsuitability criteria affect portions of each company's PRLAs. The coal land use decisions brochures for the Big Sandy and Salt Wells resource areas provide details on the application of the coal unsuitability criteria. A detailed analysis of the unsuitability criteria will be available for review in the Rock Springs District Office.

Beans Spring Project

The Beans Spring PRLAs were affected by criteria 2, 15, and 16.

Criterion 2 - Rights-of-Way and Easements

A total of 85 acres are involved with four existing rights-of-way: 6 acres in W-19187, 30 acres in W-19188, 31 acres in W-19189, and 18 acres in W-19190. After considering the criterion and excep-

TABLE I-4
ACREAGE CONTAINED IN COAL TRANSPORTATION ROWS AND ESTIMATED DISTURBANCE
PER ALTERNATIVE-BLACK BUTTE CREEK PROJECT

Alternative	Federal Acres		Private Acres		Total	
	ROW	Disturbed	ROW	Disturbed	ROW	Disturbed
Preferred	266.6	73.3	315.2	86.7	581.8	160.0
Patrick Draw Rail Route	266.6	73.3	97.0	26.7	363.6	100.0
Patrick Draw Haul Route	-0-	-0-	-0-	-0-	-0-	-0-
No Action	-0-	-0-	-0-	-0-	-0-	-0-

DESCRIPTION OF THE ALTERNATIVES

tions, the right-of-way areas were determined to be acceptable for coal development; subject to valid existing rights, negotiations for relocation if necessary, appropriate stipulations, and consistency with current planning and management decisions (see Chapter III, *Mitigation*).

Criterion 15 - Habitat for State High-Interest Wildlife

In the initial application of the criterion, all four PRLAs (W-19187, W-19188, W-19189, and W-19190), a total of approximately 8,202 acres, were determined to be unsuitable for surface coal mining due to deer crucial winter range. After a detailed analysis (see Chapter II, *Wildlife*) and consultation with the Wyoming Game and Fish Department, the BLM determined that all or certain stipulated methods of coal mining as mitigated would not have a significant long-term impact on the deer (see Chapter III, *Mitigation, Wildlife*). Therefore these areas are determined to be acceptable for surface mining methods.

Criterion 16 - Flood Plains

Three hundred and sixty (360) acres are involved with two PRLAs (200 acres in W-19187 and 160 acres in W-19188) located on Salt Wells Creek. After considering the criterion through consultation with GS, the flood plain areas were determined to be acceptable for coal development subject to appropriate stipulations and mitigation requirements (see Chapter III, *Mitigation*).

Table Project

Portions of the Table PRLA are affected by criteria 2, 11, 13, 14, and 15 (Maps 1-6 and 1-7)

Criterion 2 - Rights-of-Way and Easements

Four natural gas pipeline rights-of-way (W-4256, W-0280409, W-50630, and W-61559) totaling 7 acres, are located on the PRLA area. After considering the criteria and the exceptions, these 7 acres were determined to be acceptable for coal development, subject to valid existing rights, negotiations for relocation, appropriate stipulations, and consistency with current planning and management decisions (see Chapter III, *Mitigation*).

Criterion 11 - Bald and Golden Eagle Nests

In the initial application of the criterion, 720 acres were determined to be unsuitable for surface mining methods on this PRLA (Map 1-7). In considering the exceptions to the criterion through consultation with FWS, WGFD, and State government, it was the judgment of BLM that a coal lease could not be conditioned in such a manner that would avoid disturbance of the eagles during the breeding season and that buffer zones could not be decreased without adversely affecting the eagles. Also, the possibility of moving eagle nests was not considered viable, since these are cliff nesting sites rather than tree nesting sites. Available data do not substantiate general success in moving eagle cliff nesting sites.

Criterion 13 - Falcon Cliff Nesting Sites

In the initial application of this criterion, 910 acres were determined to be unsuitable for surface mining methods on this PRLA (Map 1-7); 720 of these acres overlap with the unsuitable area identified under Criterion 11.

In considering the exception to the criterion through consultation with FWS, WGFD, and State government, it was the judgment of BLM that the Federal lands within the unsuitable areas could not be mined in such a way or during any period of time that would not adversely affect the falcons.

Criterion 14 - Migratory Bird Habitat

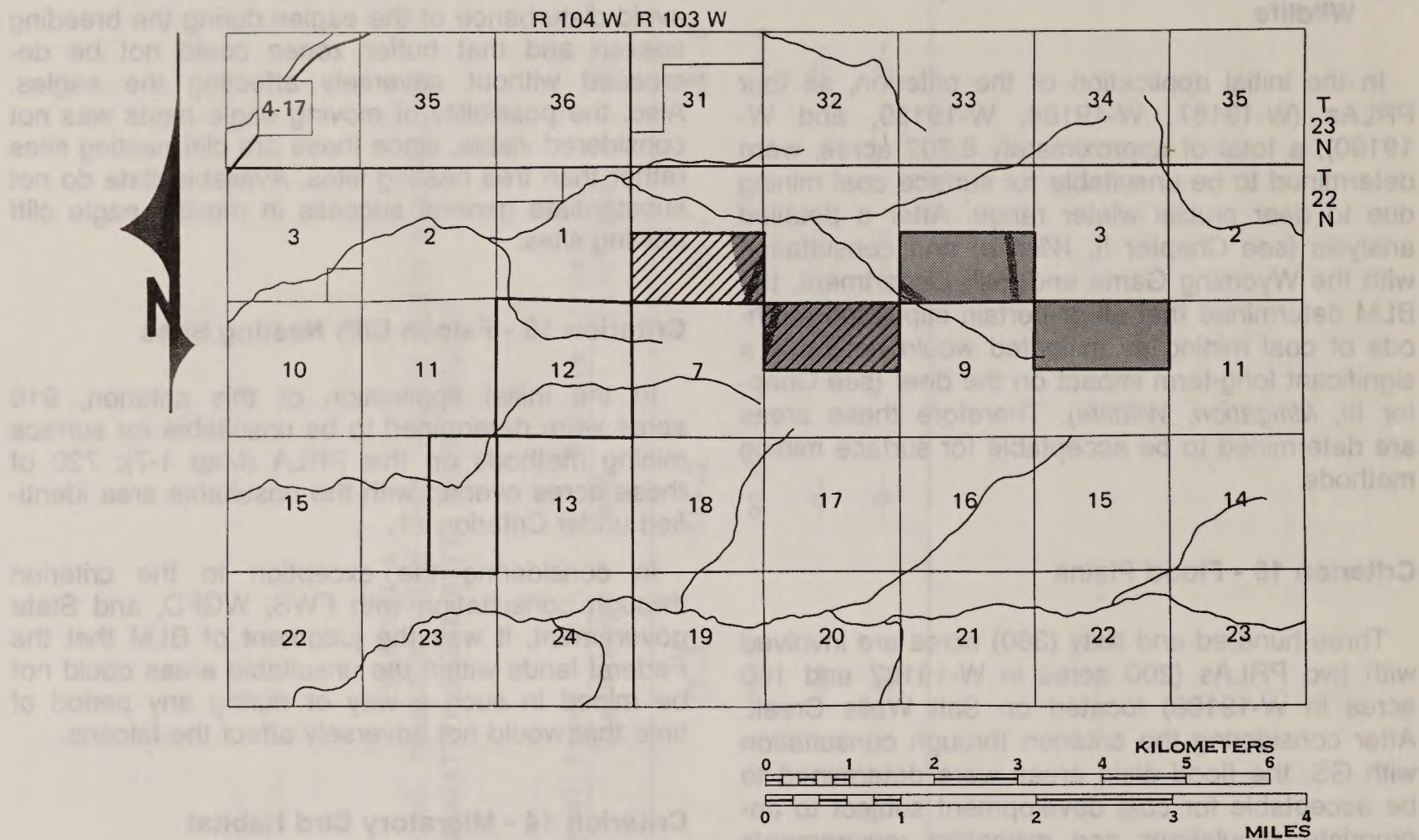
In the initial application of this criterion, 910 acres were determined to be unsuitable for surface mining methods (Map 1-7). These 910 acres coincide with the unsuitable areas identified under Criteria 11 and 13.

In considering the exception to this criterion through consultation with FWS, WGFD, and State government, it was the judgment of the BLM that certain stipulated methods of coal mining (surface mining) could not be developed to adequately prevent significant adverse effects to the high priority golden eagle and prairie falcon habitat.





Criterion 15 - Habitat for State High-Interest Wildlife

Approximately 1,040 acres of important deer winter range are involved with the PRLA (Map 1-6).

After consultation with the WGFD, the Bureau determined that the 1,040 acres would be acceptable for coal development subject to the following:



Map 1 - 6
TABLE PROJECT

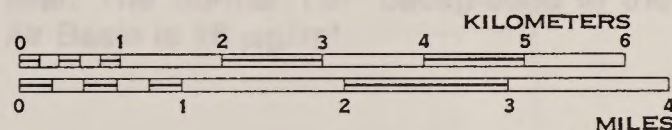
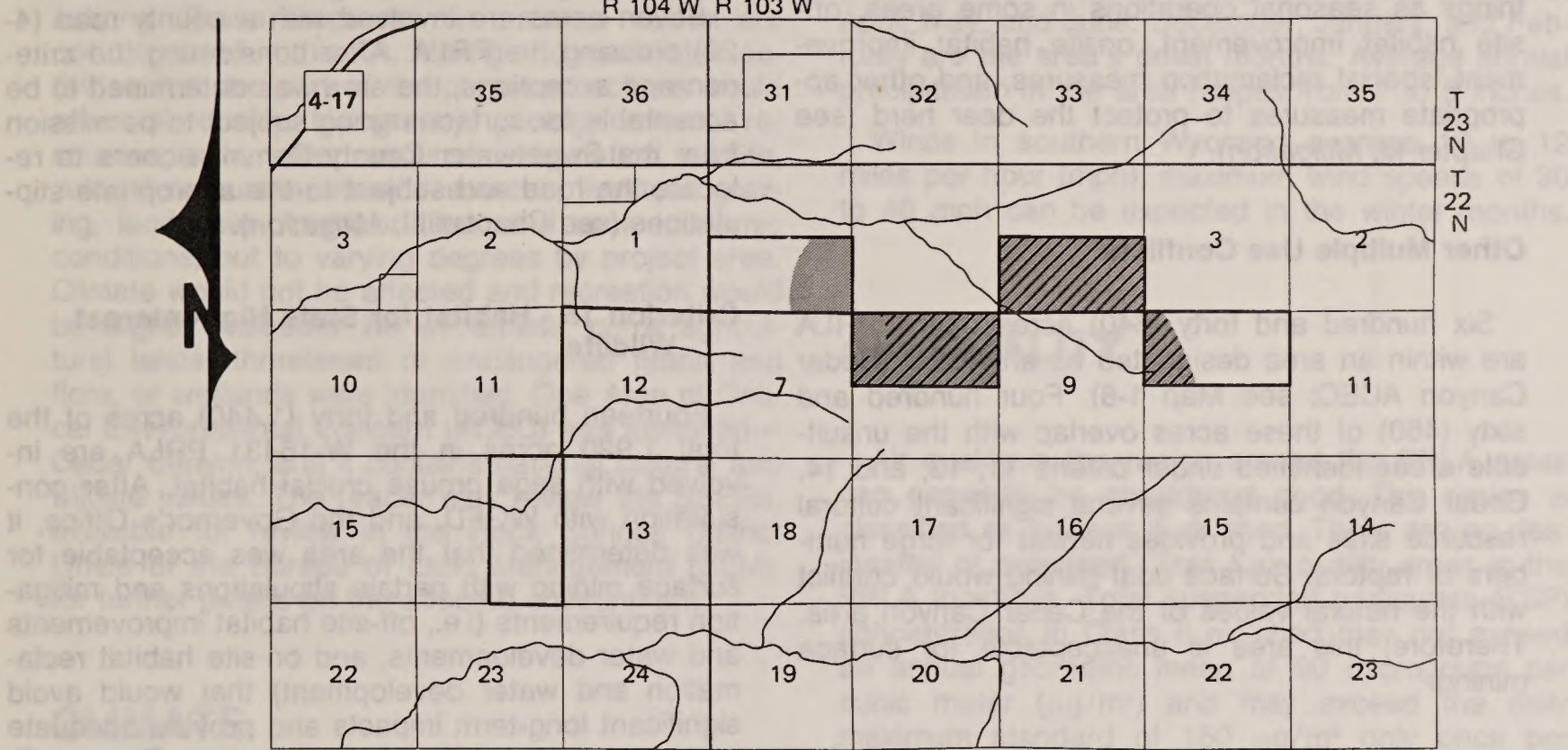
 PRLA W-308923 Boundary
 Criterion 2: Rights-of-Way
 Criterion 15: Habitat for State High Interest Wildlife
 Results of Multiple Use Conflicts (ACEC)

Map 1 - 6
TABLE PROJECT
Coal Unsuitability Criteria
and Multiple Use Conflicts (ACEC)

The area can be developed for a variety of purposes. The area is located within the PRLA W-308923 boundary. The area is located within the PRLA W-308923 boundary. The area is located within the PRLA W-308923 boundary.

Portions of the Black Butte Creek PRLA were at-
tracted by Criteria 11 and 12. The area is located within the PRLA W-308923 boundary. The area is located within the PRLA W-308923 boundary. The area is located within the PRLA W-308923 boundary.

with a mitigation plan to be developed by the
agency and the appropriate State agencies are
listed in the plan. The area is located within the PRLA W-308923 boundary. The area is located within the PRLA W-308923 boundary. The area is located within the PRLA W-308923 boundary.



GEOLOGY AND MINERAL RESOURCES

The area is located within the PRLA W-308923 boundary. The area is located within the PRLA W-308923 boundary. The area is located within the PRLA W-308923 boundary. The area is located within the PRLA W-308923 boundary. The area is located within the PRLA W-308923 boundary.

The three project areas are located on the Rock Springs Uplift, a doubly-plunging asymmetric anticline of the Laramide Orogeny. The sediments (see Figure 2-1) and fossils occurring in both project areas are common to the Rock Springs Uplift.

Temperatures in the area of the PRLA and Rock Springs are generally cool throughout the year because of the region's high elevation. January is the coldest month in the year with a mean temperature of 15.0° F, while July is the warmest month with a mean temperature of 80.0° F. Daily temperature extremes are common and can vary from below freezing to over 100° F. Low humidity is common in the area. Low humidity is common in the area. Low humidity is common in the area.

The coal deposits in the Black Butte Creek PRLA are located within the Almond Formation (Figure 1-1). Approximately 32 million tons of coal reserves are present in the project area. These reserves are present in the project area. These reserves are present in the project area.

- PRLA W-308923 Boundary
- /// Criterion 11: Bald and Golden Eagle Nests; Criterion 14: Migratory Bird Habitat
- Criterion 13: Falcon Cliff Nesting Sites; Criterion 14: Migratory Bird Habitat

Map 1 - 7
TABLE PROJECT
Coal Unsuitability Criteria

DESCRIPTION OF THE ALTERNATIVES

The area can be developed by surface mining methods provided that the surface management agency and the appropriate State agencies are satisfied with a mitigation plan, to be developed by the company in conjunction with a mining and reclamation plan, to protect the deer habitat and ensure long-term survival of the deer herd. Mitigating measures would include, but not be limited to, such things as seasonal operations in some areas, off-site habitat improvement, onsite habitat improvement, special reclamation measures, and other appropriate measures to protect the deer herd (see Chapter III, *Mitigation*).

Other Multiple Use Conflicts

Six hundred and forty (640) acres of the PRLA are within an area designated as an ACEC (Cedar Canyon ACEC; see Map 1-6). Four hundred and sixty (460) of these acres overlap with the unsuitable areas identified under criteria 11, 13, and 14. Cedar Canyon contains several significant cultural resource sites and provides habitat for large numbers of raptors. Surface coal mining would conflict with the natural values of the Cedar Canyon area. Therefore, this area is unacceptable for surface mining.

Black Butte Creek Project

Portions of the Black Butte Creek PRLA were affected by Criteria 2 and 15.

Criterion 2 - Rights-of-Way and Easements

Seven acres are involved with a county road (4-26) crossing the PRLA. After considering the criterion and exceptions, the area was determined to be acceptable for surface mining subject to permission from the Sweetwater County Commissioners to relocate the road and subject to the appropriate stipulations (see Chapter III, *Mitigation*).

Criterion 15 - Habitat for State High-Interest Wildlife

Fourteen hundred and forty (1,440) acres of the total 1,920 acres in the W-16431 PRLA are involved with sage grouse crucial habitat. After consultation with WGFD, and the Governor's Office, it was determined that the area was acceptable for surface mining with certain stipulations and mitigation requirements (i.e., off-site habitat improvements and water developments, and on-site habitat reclamation and water development) that would avoid significant long-term impacts and provide adequate protection for sage grouse values (see Chapter III, *Mitigation*).

CHAPTER II

AFFECTED ENVIRONMENT

An interdisciplinary team of resource specialists determined during the preparation of the site-specific environmental reports (SSERs) for this EA that some resources and resource values would not be affected or only slightly affected by the proposed actions. Those resources or resource values are not discussed in this EA. Mining and associated activities that are part of the proposed actions would affect air quality, topography, geology, mineral resources, soils, water resources, vegetation, wildlife, cultural resources, visual resources, livestock grazing, land uses, transportation, and socioeconomic conditions, but to varying degrees by project area. Climate would not be affected and recreation would be slightly impacted. No wilderness, prime agricultural lands, threatened or endangered fauna and flora, or wetlands were identified. One Area of Critical Environmental Concern (ACEC) was identified—Cedar Canyon, and it contains national cultural and wildlife values. The reader may review the SSERs, available for review in the Rock Springs District Office of the Bureau of Land Management (BLM), for further details on the affected environment.

CLIMATE

The area is a semi-arid high plateau where climate is strongly influenced by altitude, terrain, and mountain ranges which surround the southwest portion of the state. The region's climate is characterized by a generally high percentage of possible sunshine, high wind speeds and evaporation rates, and low humidity and precipitation.

Temperatures in the area of the PRLAs and Rock Springs are generally cool throughout the year because of the region's high elevation. January is the coldest month in the year with a mean temperature of 18.0° F., while July is the warmest month with a mean temperature of 68.8° F. Both winter and summer experience temperatures with large diurnal variations which are caused by high daily total sunshine and, at night, cooling of valleys by heat radiation and cold air drainage. Summer temperatures are seldom more than 90° F. Low temperatures of below 32° F. have been recorded from mid-August to mid-June.

Low humidity, high wind speeds, and high incidence of sunshine contribute to relatively high rates of evaporation in the area. When comparing pre-

cipitation to potential evapotranspiration, there is a water deficit for southern Wyoming from May to September. Monthly precipitation through the area reaches maximum during May with most of the year's precipitation occurring during the period of April, May, and June. December, January, and February are the area's driest months. Average annual precipitation in the area ranges from 7 to 9 inches.

Winds in southern Wyoming average 10 to 12 miles per hour (mph), maximum wind speeds of 30 to 40 mph can be expected in the winter months.

AIR QUALITY

Air quality in the region around the PRLA areas can generally be considered good. This region is classified as a Class II air shed. There are no designated or proposed Class I air quality areas in the PRLA locations. Total suspended particulate (TSP) concentration in Class II air shed may not exceed an annual geometric mean of 60 micrograms per cubic meter ($\mu\text{g}/\text{m}^3$) and may exceed the daily maximum standard of 150 $\mu\text{g}/\text{m}^3$ only once per year. The normal TSP background in the Sublette Air Basin is 18 $\mu\text{g}/\text{m}^3$.

GEOLOGY AND MINERAL RESOURCES

The three project areas are located on the Rock Springs Uplift, a doubly-plunging asymmetric anticline of the Laramide Orogeny. The sediments (see Figure II-1) and fossils occurring in each project area are common to the Rock Springs Uplift.

The coal deposits in the Beans Spring PRLAs areas are found within the Almond Formation (Figure II-1). Approximately 32 million tons of coal reserves are present in the project area. These coals' sulfur contents range from 0.30 to 2.0 percent, with heating values between 7,500 and

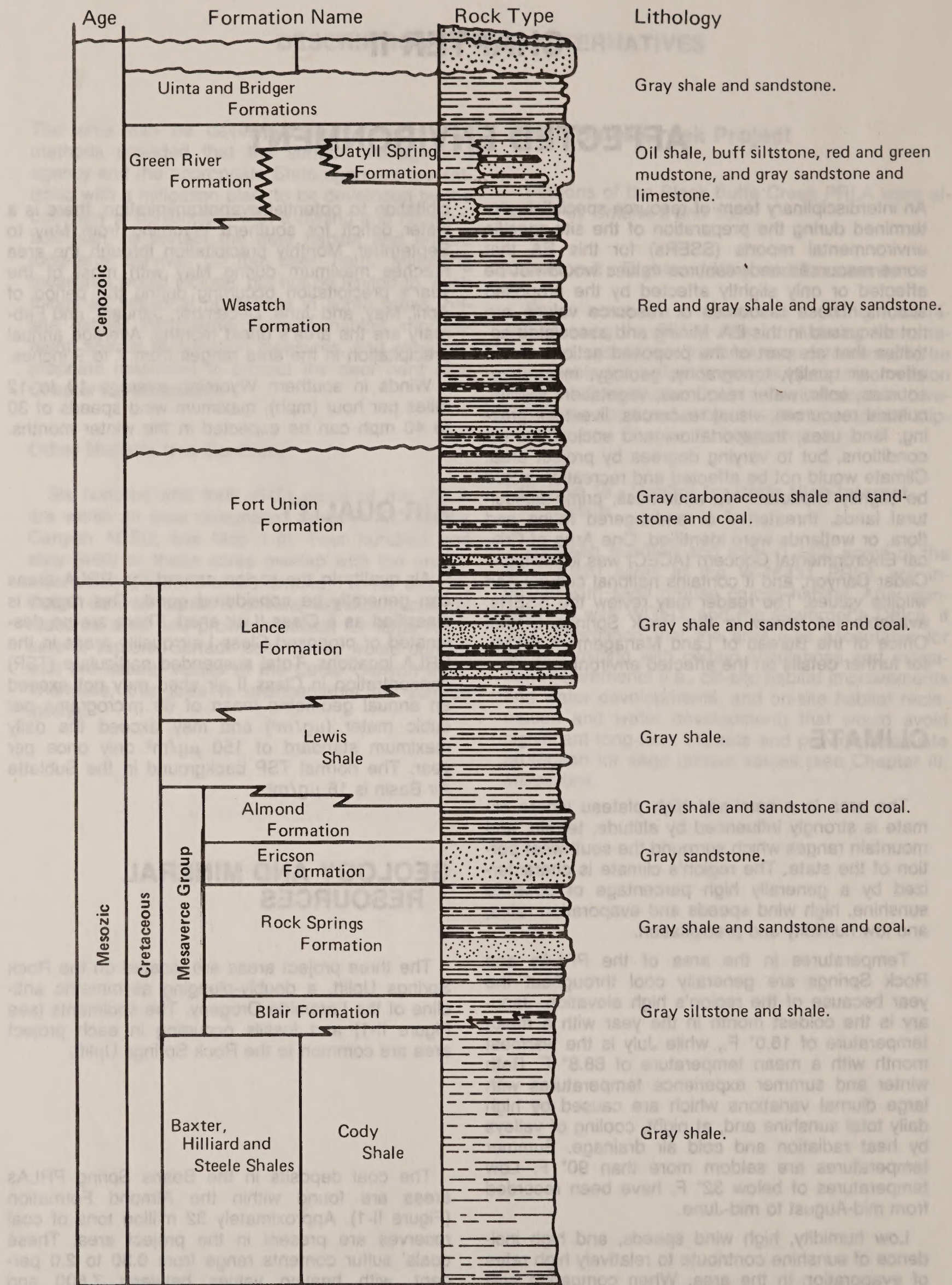


Figure II - 1
 VERTICAL SEQUENCE OF ROCK FORMATIONS
 Within Sweetwater County

AFFECTED ENVIRONMENT

12,100 BTUs per pound, as received. The coal ranks from subbituminous C to subbituminous A.

The Almond Formation apparently contains the coal reserves of interest in the Table PRLA (Figure II-1). Approximately 15 million tons of coal reserves are present in the project area. No coal quality data are available in the vicinity of the Table Project.

The Lance and Fort Union formations contain the coal reserves of interest in the Black Butte Creek PRLA (Figure II-1). Approximately 3.9 million tons of coal reserves are present in the project area. Raw coal analyses of reserves average 18.6 percent moisture, 6.7 percent ash, 1 percent sulfur, and 9,800 BTUs.

Minerals Other Than Coal

The project areas are presently leased for oil and gas. One gas development well presently occupies a portion of the Table Project area.

WATER RESOURCES

Ground Water

In the Rock Springs Uplift and immediate surrounding area, ground water occurs under both confined and unconfined conditions. Fine to coarse-grained sandstones and coal seams where permeability is enhanced by fracturing, serve as the principal water-bearing units (Welder and McGreevy 1966). Since the formations dip away from the uplift area, the inference is that the confined aquifers extending outward are primarily recharged from here. Artesian wells are somewhat common around the area of the Rock Springs Uplift which supports the designation as a recharge zone. Precipitation and infiltration of surface water are the primary sources of ground water supplies.

Geologic formations with good ground water possibilities are present within each project area. The water produced from these formations would be expected to have fair quality.

Recharge to the aquifers in the project areas is small due to low annual precipitation and high evaporation rates. Large withdrawals would probably exceed recharge and lower water levels.

Surface Water

Beans Spring Project

There are several drainages involved in the mine area and/or rail route. The ones directly affected by the proposed mine area are Salt Wells Creek, Beans Spring Creek, Little Basin Creek, and Gap Creek. Burley Draw and Patrick Draw are two drainages that may be affected by the proposed railroad spur. These drainages are generally characterized by deeply incised, narrow channels where active headcutting is occurring.

Table Project

Pine and Cedar Canyons flow west through the Table Project area and enter Killpecker Creek, a tributary of Bitter Creek. The Big Sandy Resource Area URA III indicates that the Killpecker Creek drainage covers 213,710 acres with runoff of 0.3 inches or an annual yield of 5,343 acre-feet. The sediment yield rate has been determined to be 1.35 tons per acre per year indicating a sediment problem in the area, with probable causes being geologic conditions, livestock grazing, mineral exploration, gully erosion, road construction, and road maintenance and utilization practices.

Black Butte Creek Project

Black Butte Creek, a tributary of Bitter Creek, passes through and drains 44,324 acres in the project area, yielding 18,514 acre-feet of water. Sediment yield in the Black Butte drainage is 1.32 tons per acre per year, indicating a sediment problem in the area.

Flood Plains

Beans Spring Project

Within the PRLA areas there are 360 acres of flood plain. Flood plain also exists along most of Salt Wells Creek from the project area to the confluence with Bitter Creek. This creek has a poor channel stability rating and is designated as a critical area (Salt Wells URA).

AFFECTED ENVIRONMENT

Table Project

The Big Sandy URA indicates that Killpecker Creek where the proposed rail route crosses this drainage is prone to flooding.

Black Butte Creek

The Salt Wells URA indicates that Black Butte Creek in the PRLA area is prone to flooding. The rail route would follow Salt Wells Creek for part of its length. This creek has been designated as being flood prone. It has a poor channel stability rating and is designated as a critical area (Salt Wells URA).

SOILS

Order III soil surveys covering the project areas were carried out during the 1978-79 field seasons under contract to the BLM and Soil Conservation Service (SCS). Soil unit and interpretive data for soil characteristics can be found in *Soil Inventory of the Salt Wells Area, Wyoming, 1979* (Beans Spring and Black Butte Creek PRLAs), and in *Soil Inventory of the Green River Area, Wyoming, 1981* (Table PRLA), available for review in the BLM Rock Springs District Office.

Soils located within the three project areas lie on gently sloping to steeply sloping land consisting of residual uplands, alluvial bottom lands, draws, swales, and colluvial soils at the base of rock outcrops. Much of the soil in these project areas are in the Entisol order (93 percent—Beans Spring Project, 99 percent—Table Project, and 83 percent—Black Butte Creek Project). These soils show little evidence of horizon development due to their youthfulness or high rate of erosion.

Physical characteristics and availability of topsoil are of primary importance to an area's reclamation potential. Portions of each project area were found to be unsuitable as a topsoil material source, as follows: Beans Spring Project, 55 percent unsuitable; Table Project, 42 percent unsuitable; and Black Butte Creek Project, 27 percent unsuitable.

VEGETATION

Threatened and Endangered Species

No project area supports a known candidate, proposed, or listed Federal threatened and endangered plant species or its potential habitat.

Beans Spring Project

The project area is dominated by sagebrush-grassland communities, which cover 7,162 acres of the area's 8,202 acres. Juniper communities cover approximately 700 acres of the total, and they are found on steep slopes and other shallow soils of the area. Salt Wells, Gap and Little Basin creek bottoms are generally dominated by greasewood community (260 acres), with a narrow riparian strip of sedges and rushes in the stream bottoms. The fourth community is a mountain shrub community (80 acres) which occupies the deeper soils, generally on the lee slopes of the hills. Lists of major species in these communities can be found in the Beans Spring SSER, available for review in the BLM Rock Springs District Office. Vegetation communities along the preferred rail route are greasewood, Nuttall's saltbush, sagebrush, and juniper.

The historic use and source of disturbance in this area is livestock grazing. The overall range condition, as classified in the 1979 range survey, is fair to good. Production by community is estimated at 800-1,000 pounds per acre per year for sagebrush; 700 for juniper; 1,000 for greasewood; and 1,200-1,500 for mountain shrub.

The ground cover by community is 40%, sagebrush; 40-60%, greasewood; 10-20%, juniper; and 60%, mountain shrub (Soil Conservation Service, *Technician Guide to Range Sites and Range Condition with Initial Stocking Rates*).

Table Project

The mining operations on the 2,233 acres would affect three different vegetation types: sagebrush (1,390 acres); Nuttall's saltbush (686 acres); and juniper (157 acres). The rail route would traverse 1.5 miles of sagebrush, 0.25 mile of Nuttall's saltbush, and 0.25 mile of greasewood. The major species associated with each of these communities are listed in the Table SSER.

Table II-1

MULE DEER POPULATION AND RANGE IN THE BEANS SPRING AREA

	<u>Total Herd Unit Winter Range</u>	<u>Crucial Winter Range Within the KRCRA</u>	<u>Area Affected Within the PRLAs</u>
Approximate Acres	454,785	44,525	4,700
Approximate No. of Deer	6,000	1,000	100-110

Table II-2

WILDLIFE NUMBERS IN BEANS SPRING AREA

Species Numbers of Observations by Aerial Count

	11/5/81	11/19/81	12/3/81	12/18/81
Mule Deer	104	68	17	80
Wild Horse	53	37	46	71
Pronghorn	195	199	--	76
Coyote	2	4	1	2
Golden Eagle	2	3	1	1
Prairie Falcon	--	--	--	1
Sage Grouse	30	--	20	--
TOTAL OBSERVATIONS	386	311	85	231
	1/28/82	2/11/82	2/26/82	3/18/82
Mule Deer	71	76	125	191
Wild Horse	50	41	33	53
Pronghorn	71	245	589	432
Coyote	2	3	3	2
Golden Eagle	1	1	1	1
Prairie Falcon	1	--	--	1
Sage Grouse	--	26	--	--
TOTAL OBSERVATIONS	196	392	751	682

AFFECTED ENVIRONMENT

Sagebrush communities are found on moderate slopes, non-alkaline drainages, and non-alkaline upland soils. The Nuttall's saltbush communities are found on upland and moderate slope areas in which the soils frequently have a high salt and clay content. Juniper communities are found in the area on the steep slopes with extremely shallow soils.

The historic use and source of disturbance in this area is livestock grazing; however, there has been some disturbance from oil and gas activity. The overall range condition, based on the 1979 range survey, is fair to good. Production by community is estimated at 500-800 pounds per acre per year, sagebrush; 450, Nuttall's saltbush; and 700, juniper.

The ground cover by community is 30-40%, sagebrush; 20%, Nuttall's saltbush; and 10-20%, juniper (Soil Conservation Service).

Black Butte Creek Project

Two major vegetation communities are found on the PRLA. These are the sagebrush community and the Nuttall's saltbush community. Neither of these communities is homogeneous across the area, but have many variants that reflect changes in the soils and microclimates. The sagebrush community is generally found on upland non-alkaline soils; the Nuttall's saltbush community is found along the streambed areas in soils usually having a high amount of salts and clay. The Black Butte Creek SSER lists common species of both communities. The preferred transportation alternative traverses three major communities: sagebrush, Nuttall's saltbush, and greasewood. The greasewood community is primarily found in dense alkaline soils along the major drainages. The Nuttall's saltbush community, some of which has a high proportion of greasewood, is the only community on Federal land. The Patrick Draw rail alternative would cross greasewood, sagebrush, and Nuttall's saltbush communities on Federal land.

The historic use and source of disturbance in this area is livestock grazing. Some disturbance has resulted from mineral exploration. The overall range condition is rated as fair to good (1979 range survey). Production by community is estimated at 500-600 pounds per acre per year for sagebrush; 300-450 for saltbush; and 900-1,100 for greasewood.

The ground cover by community is 30-40%, sagebrush; 10-20%, saltbush; and 50-60%, greasewood (Soil Conservation Service).

WILDLIFE

Threatened and Endangered Species

No Federal or State listed Critical Habitat is known to occur in any PRLA. The Beans Spring and Black Butte Creek PRLA areas were inventoried for potential black-footed ferret habitat (Biosystems Analysis 1981) and no habitat was identified.

Beans Spring Project

Mule Deer

The entire area is crucial winter range for mule deer (see Criterion 15, Chapter I). Some deer use the range year-round, but many migrate in summer to surrounding areas and return to the area each winter. The shrub vegetation provides the food and cover needed to support current populations.

The area lies within the Pine Mountain-Little Mountain Herd Unit (Number 24). Because the Wyoming Game and Fish Department (WGF) reports big game population numbers on the basis of herd units, herd unit data will be used here. Table II-1 is a comparison of total winter range in the herd, crucial winter range within the Rock Springs KRCRA, and crucial winter range affected within the PRLAs. The numbers are a combination of observations and estimations based on population modeling done by the WGF. No count of deer in the area was made in the 1980-81 winter due to the unusually warm weather.

Arch Mineral Corporation, in cooperation with the BLM and the Wyoming Game and Fish Department (WGFD), conducted a study during the winter of 1981-82 to collect wildlife data for the Beans Spring area. Table II-2 lists aerial counts made in the area. This study (Fala 1982) is on file at the Rock Springs District Office. The "Summary and Conclusions" section is presented below:

A cooperative study (Arch, WGFD, and BLM) was conducted over a 134 square mile study area in southwestern Wyoming including the Beans Spring PRLAs, State leases, and a substantial buffer of same. Nine aerial census flights were conducted over the study area between November 5, 1981, and April 8, 1982. The primary objectives of the study were to gain insight on mule deer winter observed densities, distributions, group sizes, etc. and to determine crucial wintering ranges, if any, in relation to winter weather conditions and proposed de-

AFFECTED ENVIRONMENT

velopment. However, observations of all wild, feral and domestic animals were recorded.

A total of 3,448 individual wildlife observations were made during the nine flights (2,000 antelope; 881 mule deer; 445 wild horses; 84 sage grouse; 20 coyote; 13 golden eagle; 4 prairie falcon; and 1 red-tailed hawk). Observed densities for mule deer, antelope, and wild horses were 0.90, 2.03 and 0.42 per square mile, respectively. Average group sizes for mule deer, antelope, and wild horses were 3.9, 35.0, and 5.5 animals per group, respectively. Of these data, variation was greatest for antelope and least for wild horses.

Antelope showed almost a complete allegiance to wide-open areas and the sagebrush-grassland habitat type. Except for the northern and eastern fringes of the study area, antelope were generally absent from the heart of the study area during peak winter. In contrast, mule deer preferred the rough-broken areas in the vicinity of drainages, canyons, and juniper patches and the sagebrush fringes of these areas. Deer moved into and around juniper patches during peak snowdepth periods and in view of the somewhat limited extent of this type, the juniper-sagebrush type was declared as important winter habitat. The winter of 1981-82 could be classified as an average or normal winter in terms of snowdepth, etc., or winter deer survival. Although crucial wintering conditions did not exist, some judgments on mule deer crucial habitats are presented. It is contended that some mule deer crucial winter habitats may exist in the central or eastern portion of the study area in and around juniper patches, rims, or canyons. Specifically, the Laney Rim and Laney Canyon areas and their associated juniper patches and sidewalls in the northcentral part of the study appeared to be the most utilized portion of the study area by mule deer in the winter of 1981-82 and this area may qualify as crucial wintering range. On the other hand, it is contended that many areas, particularly in the western half of the study area, may not qualify as mule deer crucial winter habitat. These areas would include the aspen patches that were severely snowdrifted and the Mellor Mountain grassland mesa and any other areas with drifted and/or accumulated snowdepths and/or vast predominantly open grassland areas, such as: Mellor Mountain, Chicken Springs, Buffalo Springs, and Beans Spring. Further study, particularly under mule deer crucial winter survival conditions are needed to corroborate or refute these judgments and a commitment to further study is presented.

Wild horses were the most evenly distributed species observed. Their numbers present in conjunction with the percentage of horses observed in the juniper habitat type is presented as a potential competition for feed factor between horses and

mule deer in winter. Livestock, cattle and sheep, were observed in the study area on every flight and data is presented to document their existence and any potential competition factors. Miscellaneous wildlife observations were reported to document their existence and make best utilization of the flight budget.

This study is to be continued in the winter of 1982-83, or longer if necessary, but on a less intensive basis. Supplemental flights are committed to if and when deer crucial survival conditions arise (i.e., crucial snowdepths). In addition, USGS orthophoto quadrangles will be obtained to better quantify habitat types and habitat affinities in the study area.

Antelope

The entire Beans Spring area is summer range for antelope. In addition, the area through Titsworth Gap is a heavily used migration corridor for pronghorn that move from the higher elevation area on Mellor Mountain to the Tommy James Basin south of Aspen Mountain.

Sage Grouse

Sage grouse occur at low densities in the sagebrush-grassland and juniper-sage habitat types throughout the entire PRLA area. Existing data indicate that no strutting grounds currently occupy the PRLAs. Crucial habitat for grouse populations does occur where the preferred rail route parallels Salt Wells Creek.

Raptors

Nine buffer zones established for prairie falcon (2 nests) and golden eagle nests (7) are within portions of the proposed rail route.

Table Project

Deer

A variety of shrubs, forbs, and trees scattered across canyons and ridgetops provide excellent habitat for deer. Some deer fawning activity occurs here.

Some winters may find as many as 220 deer browsing on the ridges between Cedar and Pine Canyons. This area is classified as 'important' deer winter range (Wyoming Game and Fish Department, written communication 1981).

AFFECTED ENVIRONMENT

Elk

The Rosebud Coal PRLA is part of the Steamboat-Sands Herd Unit. The population was established from Yellowstone elk transplants from 1946 to 1970. After population fluctuations from 500 to 1,200, the number has generally stabilized at 600 animals. Seasonal movements are between Indian Gap to the Cedar-Long Canyon area. Some elk calving occurs here during May.

Raptors

Three active prairie falcon nests are found on the Table Project PRLA, along with two golden eagle, two great-horned owl, two red-tailed hawk, four kestrel, and one ferruginous hawk nests.

Areas of Critical Environmental Concern

The Cedar Canyon ACEC contains wildlife values. See Chapter I, *Coal Unsuitability Criteria Affecting the Proposed Actions*, and SSER for details.

Black Butte Creek Project

Raptors

Two raptor nests, one great-horned owl and one American kestrel, are located in section 11, T. 17 N., R. 101 W., about one-half mile from the PRLA area boundary. Although golden eagles have been observed hunting and perching in the project area, no raptor nesting activity has been noted. There are 20 raptor nests within one mile of the proposed rail route. These include 8 golden eagle, 6 prairie falcon, 3 red-tailed hawk, and 3 ferruginous hawk nests.

Sage Grouse

Sage grouse occur at moderate densities in the sagebrush-grassland and juniper-sage habitat types throughout the entire area. Existing data indicates that no strutting grounds currently are within the area; however, strutting grounds 14-3-75 and 14-4-75 (WGF designation) are located within one-half mile and approximately two miles, respectively, from the PRLA area boundary. The entire Black Butte Creek Project area is potential sage grouse habitat.

AQUATIC WILDLIFE

No fisheries habitat occurs in the Table and Black Butte Creek PRLA areas.

Beans Spring Project

Three species of fish have been reported for the Beans Spring Project area: speckled dace, long-nose dace, and mountain sucker. In a report submitted to BLM by Bio/West, Inc. (1980), speckled dace were noted in Salt Wells Creek and Gap Creek; mountain sucker were collected in Salt Wells Creek, Gap Creek, and Beans Spring Creek; and, although longnose dace were noted from previous collections, none were collected during 1980. USGS reports by Engelke (1978) and Lowham, *et al.* (1982) mention both speckled dace and mountain suckers in Salt Wells and Gap Creeks.

WILD HORSES

Beans Spring Project

The PRLA area contains 8,202 of the 780,000 acres in the BLM Aspen Mountain Inventory Area. BLM counts during the winter of 1981-82 indicate 50 wild horses use the PRLA area.

Table Project

From 50 to 150 wild horses may be found in this area, depending upon the time of year. The Big Sandy planning system recommends removal of all wild horses in this area.

Black Butte Creek Project

The BLM has counted 109 head of wild horses in this general area.

AFFECTED ENVIRONMENT

LIVESTOCK GRAZING

Beans Spring Project

The Beans Spring Project area is located within portions of two grazing allotments. Approximately 5,760 acres are located in the Salt Wells Allotment; 2,240 acres are located in the Vermillion Creek Allotment; and 1,200 acres are located on State lands under exchange-of-use to the Salt Wells Livestock Company (Table II-3).

There are two operators (Salt Wells Livestock Company and Ramsey Ranch) who run cattle and horses in the Salt Wells Allotment from May 1 to October 31. There is a total of 4,658 AUMs active use licensed in the allotment (2,618 AUMs on Federal land and 2,040 AUMs on State and Private lands under exchange-of-use to the Salt Wells Livestock Company). At present 635 AUMs (14 percent of total forage) are available for livestock forage on the 7,082 acres that could be used for coal mining and related facilities.

There are a total of seven operators who run cattle and sheep in the Vermillion Creek Allotment from November 1 to April 30. There are a total of 10,990 AUMs active use licensed in this allotment. At present 163 AUMs (one and one-half percent of total forage) are available for livestock forage on the 2,240 acres of the Vermillion Creek Allotment that could be affected by the proposed coal mining.

Table Project

The area represents less than 1% of the Rock Springs Grazing Allotment (total of 1,797,178 acres). It is used by both cattle and sheep for winter range; cattle use the area during the spring for calving and during the summer for grazing.

Black Butte Creek Project

The area is part of the Rock Springs Grazing Allotment. It is grazed by winter sheep from December 1 to May 15 and by winter cattle from October 1 and December 15. Nineteen operators grazed 91,535 sheep on the allotment during the 1980-81 grazing season.

CULTURAL RESOURCES

Beans Spring Project

Archeological surveys in the proposed coal lease area and adjacent lands indicate the project area is located in a low site-density region. Portions of the PRLA area that contain juniper stands are considered to have higher site potential. The topography in some locales is favorable in some locales for kill sites such as jumps or drives.

A variant of the late 19th century Brown's Park, Utah-Rock Springs road parallels Gap Creek through Titsworth Gap. The proposed railroad route would cross the Overland Trail near Patrick Station. Although no historically significant ranches or sites are known to exist in the PRLA area, the general vicinity contains historic values.

Table Project

The N½ section 8, T. 22 N., R. 103 W., is within the proposed Cedar Canyon Area of Critical Environmental Concern (ACEC). This area appears to be a large and complex prehistoric property. See Chapter I, *Coal Unsuitability Criteria Affecting the Proposed Actions*, and SSER for details.

Black Butte Creek

Present knowledge of cultural resources in this area is limited. A number of significant, National Register quality prehistoric and historic cultural resources have been identified along the preferred rail route. The Overland Trail runs along Bitter Creek at the northern terminus of the rail line. See SSER for details.

WILDERNESS

There are no Wilderness Study Areas within or adjacent to any of the PRLAs.

Table II-3

GRAZING ALLOTMENTS AND LICENSED USE

Prospecting Permit No. & Grazing Allotment	Federal Land Legal Description	Acres	AUMs	
<u>Vermillion Creek Allotment</u>				
W-19187	T. 14 N., R. 103 W. Section 14, All	640.00	54.0	
	23, All	640.00	41.9	
	26, N 1/2	320.00	20.5	
<u>Salt Wells Allotment</u>				
W-19188	27, All	640.00	46.6	
		640.00	57.9	
	21, All	640.00	58.5	
	28, All	640.00	58.0	
	32, All			
	33, W 1/2, W 1/2			
	E 1/2, NE 1/4			
	NE 1/4, NE 1/4	560.00	52.2	
	SE 1/4			
	SE 1/4 NE 1/4, SE 1/4 SE 1/4	80.00	8.0	
W-19189	T. 14 N., R. 104 W. Section 19, All	605.54	41.2	
	20, All	238.62	22.0	
	29, All	640.00	58.1	
	31, All	545.29	43.5	
W-19190	T. 14 N., R. 104 W. Section 23, All	289.64	22.3	
	24, All	229.60	21.8	
	25, Lots 1, 2, 3, 4	138.61	13.2	
	7, and 8	79.98	8.3	
	26, Lots 4 and 5			
	T. 14 N., R. 103 W. Section 30, All	634.80 8,202.08	43.7 671.7	Subtotal
<u>State Land</u>				
State Land				
	T. 14 N., R. 103 W. Part of Tract 42	40.00	4.2	
	T. 14 N., R. 104 W. Tract 39	480.00	54.7	
	Tract 40	80.00	6.0	
	Tract 42	240.00	25.2	
	Tract 46	160.00	16.0	
	Tract 47	80.00	9.5	
	Tract 45	120.00	11.0	
		1,200.00	126.6	Subtotal
		9,402.08	798.3	Total

AFFECTED ENVIRONMENT

LAND USES

Livestock grazing, wildlife habitat, and oil and gas production and development are the primary land uses of the lands that comprise the PRLAs and preferred transportation routes.

SOCIOECONOMIC

Sweetwater County would be the primary area affected by the proposed actions. The coal industry has been a major contributing factor to the growth and development of Sweetwater County and the southwestern Wyoming region. The development of Union Pacific Railroad stimulated coal production in the late 1860's. Major economic growth in Sweetwater County could again be attributed to the coal industry when the Jim Bridger Power Plant and coal mine was developed in the early 1970's. This development resulted in a boom town growth situation in Rock Springs and the neighboring community of Green River. The rapid growth situation has continued with additional stimulus provided by the oil and gas industry and soda ash industry.

Population

Green River realized the largest population increase of all communities within the Rock Springs BLM District boundary of Sweetwater County, with a 10-year growth of 205 percent (U.S. Department of Commerce Bureau of the Census 1980). Rock Springs showed a population increase of 7,797 residents from 1970 to 1980, which represents a 67 percent growth rate over the 10-year period. Many other small towns like Eden, Farson, Reliance, and Point of Rocks are not incorporated, and populations of these places are included in with the remainder of the county. Sweetwater County realized a growth rate of 127 percent from 18,391 residents in 1970 to 41,723 in 1980. Population counts prior to 1980 for Sweetwater County can be found in the Rock Springs District Social-Economic Profile (SEP).

Employment and Income

The Rock Springs District SEP lists employment and income for Sweetwater County from 1970 to 1979. Wage and salary employment made up 94.2 percent of total employment in 1979, with the re-

maining 5.8 percent being farm (7.9%) and nonfarm (92.1%) proprietors. The mining industry was the largest employer in Sweetwater County in 1979, with 30.7 percent of the total wage and salary employment. Employment in the mining industry increased 291 percent from 1,609 in 1970 to 6,299 in 1979. Employment in the construction industry increased 614 percent from 382 employees in 1970 to 2,729 in 1979. Total employment in Sweetwater County increased 164 percent in the same nine-year period. The unemployment rate averaged 3.5, 2.5, and 3.5 percent for Sweetwater County in 1978, 1979, and 1980, respectively (Rock Springs District SEP).

Personal income from wage and salary disbursements amounted to \$345.06 million in 1979, which accounts for 89.5 percent of total labor and proprietor's income in Sweetwater County. Other labor income and proprietors' income amounted to 7.2 and 3.3 percent, respectively, of total income. Proprietors' income of \$12.5 million was divided into farm (0.8%) and nonfarm (99.2%) income. Labor and proprietors' income in the mining section accounted for 41.5 percent of the total labor and proprietors' income of \$385.5 million in Sweetwater County in 1979. Income in the mining industry has increased 901 percent from \$15.99 million in 1970 to 160.1 million in 1979. An even more dramatic increase in labor and proprietors' income was realized in the construction industry, which showed an increase in income of 1,714 percent from \$3.8 million in 1980 to \$65.2 million in 1979. Construction is now the second largest income producing sector, accounting for 16.9 percent of total labor and proprietors' income. Per capita personal income has increased 193 percent from \$3,598 in 1970 to \$10,577 in 1979. This is 109.8 percent of Wyoming's per capita income and 120.7 percent of the national per capita income.

Housing

The Rock Springs District SEP shows the housing characteristics for Sweetwater County for 1970 and 1979. Mobile homes and multifamily dwellings have increased as a percentage of total housing units. The 1980 Census reported a total of 15,116 housing units (1980 Census of Population and Housing, U.S. Department of Commerce), which represents an increase in housing units of 139 percent during the 10-year period from 1970 to 1980. The Rock Springs City Planner estimates a vacancy rate of less than 1 percent in Rock Springs (pers. comm., Rich Unger 1981). The large population influx in recent years has created a high demand for housing. The 1981 Rock Springs Community

AFFECTED ENVIRONMENT

Profile lists the cost of a new three-bedroom home with 1,100 square feet of floor space, unfinished basement, and one-car garage at \$78,000. In comparison, a three-bedroom house rents for \$600 per month (1981 Rock Springs Community Profile).

Schools

Total school enrollment in Sweetwater County in 1980 was 9,092, with a recommended capacity and maximum capacity of 9,730 and 13,410, respectively. The recommended capacity, maximum capacity 1980 enrollment, and percent of maximum capacity of all public schools in Sweetwater County is shown in the Rock Springs District SEP. In all schools except Washington Elementary School in Rock Springs, 1980 enrollment was less than maximum capacity. In Washington School the 1980 enrollment exceeds maximum capacity by 43 pupils. The 1980 enrollment ranges from 32 percent to 97 percent of maximum capacity, excluding Washington School in Rock Springs. In general, there is some space available for additional pupils throughout the county, although operating near recommended capacity is preferable.

Infrastructure and Social Services

Rock Springs and Green River have undergone rapid development over the past decade and, as a result, local services and infrastructure have lagged behind requirements. In general, the basic community and social services are now catching up with or meeting current demands. As an example, Rock Springs added a new sewage treatment facility which will handle 2 million gallons per day (MGD) and has a 0.75 MGD facility to handle the wastewater from the White Mountain area of the city. These facilities could serve a combined capacity of 34,000 persons, assuming a generation rate of 80 gallons per person (Wyoming Industrial Siting Administration 1981). However, new development in Rock Springs cannot be served by the White Mountain facility which has excess capacity at this time (Wyoming Industrial Siting Administration 1981). Green River is currently improving its sewage treatment facilities, which will include a 0.25 MGD expansion to bring total capacity to 1.5 MGD (Wyoming Industrial Siting Administration 1981).

Law enforcement in Rock Springs meets requirements with a police force of 54 (Rock Springs Chamber of Commerce 1981). Green River employs a police force staff of 26, and the Sweetwater County Sheriff's Office has a staff of 36 (Green

River Chamber of Commerce 1981). The Governor's Planning Committee on Criminal Administration considers 1.5 police officers per 1,000 persons adequate.

Medical services in Sweetwater County have generally improved in the period from 1975 to 1981 (Rock Springs District SEP). The ratio of dentists and doctors to total population has increased by 136 and 74 residents per specialist, respectively, in the six-year period from 1975 to 1981. The ratio of Optometrists, Pharmacists, Registered Nurses (RNs) and Licensed Practical Nurses (LPNs) to total population has decreased during the same time period.

Medical services in Rock Springs include 34 doctors; 10 dentists; the Memorial Hospital of Sweetwater County with 100 beds; the Kimberly Manor Nursing Home with 100 beds; and the Miner's Respiratory Clinic (Rock Springs Chamber of Commerce 1981). Green River has 5 doctors and 4 dentists (Wyoming Department of Economic Planning and Development 1980).

Fire protection in Rock Springs is considered adequate and Green River is currently in need of an additional 250 gallons per minute pumping capacity (Wyoming Industrial Siting Administration 1981). Other services not aforementioned are considered adequate at this time, or they are not expected to be impacted by this project.

Revenues and Taxes

Coal production is a major source of revenues to Sweetwater County. Coal production has increased from 1.9 million tons in 1975 to 7.2 million tons in 1979. As expected, ad valorem production taxes and severance taxes have also increased from \$618,023 and \$420,911 in 1976 to \$4.74 and \$7.65 million in 1980, respectively. Property taxes on coal mining facilities and equipment were estimated at \$422,802 in 1980.

Sales tax is collected at a rate of 4 percent in Sweetwater County. In 1980 the mining industry paid \$3.06 million in sales tax which amounts to 17.2 percent of the county total \$17.74 million in sales tax collections (Wyoming Department of Administration and Fiscal Control 1980).

Federal royalties are collected on new coal production at a rate of 12.5 percent on surface-mined coal and 8.0 percent on subsurface-mined coal. One-half of all Federal royalties are returned to the State. Federal royalties paid on coal production in Sweetwater County were \$849,910 and \$1,434,407 in fiscal years 1979 and 1980, respectively.

CHAPTER III

ENVIRONMENTAL CONSEQUENCES

IMPACTS OF THE ALTERNATIVES

In each site-specific environmental report (SSER), impacts to some resources and resource values due to each alternative were determined to be of minor significance. Mining would result in minor impacts to wild horses, transportation, and recreation resources. Those impacts are not discussed in this document; but are in the SSERs, available for review at the Bureau of Land Management (BLM) Rock Springs District Office. Only the important impacts of the individual projects or the cumulative impacts are summarized.

Impacts of the No Action Alternative

If the No Action Alternative were selected, approximately 44.9 million tons of Federal and 6.1 million tons of State and private coal in the PRLA areas would not be mined in the near future. Therefore this coal would not be available to meet the coal leasing target set by the Secretary of the Interior for the Green River-Hams Fork Region. Approximately \$705.6 million (1980 dollars) in gross revenue would be foregone by the companies.

Resources and resource values described in Chapter II and the respective SSERs would not be affected, and the adverse and beneficial impacts outlined in this chapter under *Impacts of the Proposed Actions* would not occur.

Coal production would continue to increase in the Rock Springs area, although at a lower rate. Projected production in western Sweetwater County without the proposed action is shown in Table III-1. This production would meet area demands for coal, including the Bridger Power Plant and soda ash production plants in the county, as well as supplying coal to power plants in the midwest and to out-of-state industries. Planned leasing in 1984 could result in higher production figures after 1990, although all production is subject to market demands. The Leucite Hills Mine started production in 1982, and the Long Canyon Mine could begin production in 1988. It is assumed that the development of coal at Winton would not begin until after 1990, and that the Stansbury and Rainbow-Columbine mines would resume production later in that decade. Other area mines, including the private coal at Reli-

ance, could begin production in the same time period; large coal reserves also exist in eastern Sweetwater County. Further details on coal development in the area are presented in the Southwestern Wyoming Coal Environmental Statement (Interior Department 1978).

The no-action alternative would not impact other energy-related developments or industrial development in the Rock Springs area. Trona operations in the western portion of Sweetwater County use coal from the Kemmerer area, and the Leucite Hills Mine will supply the new Tenneco soda ash development. Nevertheless, future industrial development such as new power plants could depend upon increased development of the area's coal reserves.

Cumulative Impact Analysis

Energy-related and industrial development would continue to impact Sweetwater County without the proposed actions. This would include the Sand Butte Project, which would be an extension of the mine life of an existing coal operation (Black Butte Mine). Tables III-2 and III-3 indicate projected impacts to land surface, wildlife, cultural resources, and livestock grazing should the proposed actions not occur. Cumulative analysis is based on 1980 data. Employment, population, housing, and school enrollments with and without the proposed coal projects are shown in Table III-4.

The Sand Butte EA (BLM 1981) projects the loss of 4,855 acres of existing vegetation should the area be mined. This would result in the loss of 400 animal unit months (AUMs) of livestock grazing per year until reclamation could be completed. The mining would disturb a portion of antelope year-round range, and could disrupt golden eagle, ferruginous hawk, and prairie falcon nesting and hunting activity in the area. Wild horses in the area also would be affected. Existing soil properties in the area to be mined would be altered, and approximately 15.9 million tons of Federal coal removed. Mining would curtail recreation activities in the area, and the visual resource management classification would be lowered from IV to V.

Minimal socioeconomic impacts would occur since no increase in the Black Butte workforce is anticipated as a result of the project. The additional production would result in additional wages and in additional revenues from ad valorem production

CHAPTER III

ENVIRONMENTAL CONSEQUENCES

IMPACTS OF THE ALTERNATIVES

Table III-1

ROCK SPRINGS AREA COAL PRODUCTION IN MILLIONS OF TONS WITHOUT THE PROPOSED ACTIONS

Mine	1980 Production ^{2/}	1985 Projections	1990 Projections
Black Butte ^{1/}	3.72	6.00	6.00
Bridger	6.95	7.70	7.20
Leucite Hills ^{3/}	--	0.33	0.33
Long Canyon	--	--	0.50
Stansbury ^{4/}	0.23	--	--
Winton	--	--	0.50
TOTAL	10.60	14.03	14.53

^{1/} Includes production from Sand Butte Project PRLA which would extend mine life.

^{2/} From State Mine Inspector's annual report, 1981.

^{3/} Production scheduled to begin in 1982.

^{4/} Mine operations were terminated in February 1981.

Table III-2

CUMULATIVE ACRES DISTURBED IN SWEETWATER COUNTY WITHOUT PROPOSED ACTIONS

Type of Development	Cumulative - 1980			Disturbed	1985		Residual	Disturbed	1990		Residual
	Disturbed	Reclaimed	Residual		Reclaimed	Residual			Reclaimed	Residual	
Coal Mines and Facilities	5,762	1,910	3,852	8,592	4,491	4,101	12,351	7,284	5,067		
Trona Mines/Soda Ash Plants <u>1/</u>	8,100	0	8,100	8,500	350	7,750	10,350	1,700	8,650		
Oil and Gas Wells and Facilities <u>2/</u>	15,845	10,191	5,654	20,091	11,967	8,124	21,499	13,287	8,212		
Other Industrial Facilities <u>3/</u>	1,200	600	600	4,800	2,400	2,400	5,500	2,800	2,700		
Urban Land Use* <u>4/</u>	---	---	16,522	---	---	16,522	---	---	16,522		
Major Rights-of-Way* <u>4/</u>	---	---	13,247	23,651	7,936	15,715	29,891	9,989	19,902		

NOTE: This table updates the cumulative impacts of coal development identified in the Southwestern Wyoming Coal Environmental Statement (Department of the Interior 1978). Disturbance is for Rock Springs District portion of Sweetwater County.

1/ From Sodium Mineral Development Environmental Assessment (BLM 1982).

2/ From Big Sandy/Salt Wells Oil and Gas Environmental Assessment (BLM 1981).

3/ BLM staff estimates from various ongoing and proposed projects, and from Southwestern Wyoming Coal ES.

4/ From Final Land Use Plan, Sweetwater County, Wyoming. THK Associates, Inc., for Sweetwater County Planning and Zoning Commission, 1977.

*Figures not available for cumulative disturbed.

Table III-3

CUMULATIVE IMPACTS OF COAL DEVELOPMENT UNDER NO ACTION ALTERNATIVE

	1980 Cumulative	1985	1986	1987	1988	1989	1990
Acres of Surface Disturbance (assuming reclamation)	3,852	4,101	4,286	4,471	4,669	4,867	5,067
Millions of Tons Mined	236.97	302.76	316.79	324.12	337.65	351.58	384.81
Acres of Deer Crucial Habitat Disturbed	0	0	0	0	13	26	39
Number of Elk Displaced	54	54	54	54	54	54	54
Number of Cultural Sites Lost	59	76	81	86	91	96	102
Livestock Grazing AUMs Lost ^{1/}	257	273	286	298	311	324	338

^{1/} Calculated by using District average of 15 acres per AUM.

Table III-4

DIRECT AND INDIRECT EMPLOYMENT, POPULATION, HOUSING, AND SCHOOL ENROLLMENTS
IN ROCK SPRINGS, GREEN RIVER, AND SWEETWATER COUNTY

	1985	1986	1987	1988	1989	1990
Employment in Sweetwater County ^{1/}	26,115	26,775	27,435	28,095	28,750	29,410
Primary Employment Increase from Coal Projects ^{2/}	---	99	99	216	271	271
Secondary Employment Increase from Coal Projects ^{2/}	---	43	43	172	216	216
Total Employment	26,115	26,917	27,577	28,483	29,273	29,897
Population in Sweetwater County ^{1/}	49,095	50,335	51,580	52,820	54,050	55,290
Population Increase from Coal Mining Projects ^{3/}						
Rock Springs	---	204	204	587	736	736
Green River	---	73	73	211	264	264
Balance of County	---	32	32	93	119	119
Total Population	49,095	50,664	51,889	53,711	55,169	56,409
Additional Housing Requirements ^{3/}						
Rock Springs	---	77	77	198	250	---
Green River	---	29	29	71	89	---
Balance of County	---	13	13	32	40	---
Total	---	119	119	301	379	---
Additional School Enrollments ^{3/}						
Rock Springs	---	69	69	219	276	---
Green River	---	26	26	79	99	---
Balance of County	---	12	12	36	45	---
Total	---	107	107	304	420	---

^{1/} Employment and population projections are BLM estimates based on past trends and future employment shown in Table III-5.

^{2/} See Table III-5 for a breakdown of employment by mining project.

^{3/} Population, additional housing requirements and school enrollments are derived from Table III-6 assuming employees from each project set up residence in the County as follows: Beans Spring Coal Project employees settle 60 percent in Rock Springs and 40 percent in Green River; Peabody Coal Project employees settle 80 percent in Rock Springs, 10 percent in Green River, and 10 percent in the remaining areas of the county; and the Table Project employees settle 70 percent in Rock Springs and 30 percent in the remaining areas of the county.

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taxes, severance taxes, and Federal royalties through the 2.3 years added to the economic mine life.

Impacts of the Proposed Actions

An interdisciplinary team of resource specialists has analyzed the proposed actions and determined that the following resources and resource values would be affected: air quality, topography, mineral resources, geology, water resources, soils, vegetation, wildlife, cultural resources, livestock grazing, land uses, and socioeconomic conditions.

Mitigation necessary to minimize adverse effects on resources, the environment, and the local communities will be based on the impacts discussed below, and the coal unsuitability criteria discussed in Chapter I.

Air Quality

Strip mining of coals can result in significant impacts to the air shed of any mining area. Most emissions from surface mining are gases from internal combustion engines used in mining equipment, fugitive dusts from blasting, removal and handling of topsoil and overburden, coal dusts from coal handling, and dusts generated from travel on unpaved roads. Air quality impacts from surface coal mines primarily influence particulate levels. The Wyoming Department of Environmental Quality (DEQ) requires that changes in particulate concentrations resulting from each proposed surface mining operation be fully analyzed.

Owing to lack of specific mine development information, the impacts of the mining operations on air quality can best be assessed using a sketch planning level methodology called a nomograph.

Beans Spring Project. By using the nomograph for Wyoming coal leasing (PEDCO Environmental, Inc., 1981) a maximum off-site total suspended particulate (TSP) concentration of $30 \mu\text{g}/\text{m}^3$ average geometric mean was calculated. Due to the fact that the nomograph considers a worst case scenario, the ambient TSP concentration for the project area should not exceed $48 \mu\text{g}/\text{m}^3$ during the PRLAs' active mine life. The information provided by this calculation predicts that no violations of Federal or State air quality standards would be expected to result from the proposed action (see Chapter II, *Air Quality*).

Table Project. By using the nomograph for Wyoming coal leasing (PEDCO Environmental, Inc., 1981), a maximum off-site total suspended particulate (TSP) concentration of $16 \mu\text{g}/\text{m}^3$ (micrograms

per cubic meter) was calculated. The TSP concentration within pit areas would at times reach or exceed the $60 \mu\text{g}/\text{m}^3$ secondary standard. Levels of fugitive dust drop rapidly with distance, and it is estimated that ambient concentrations should not exceed $34 \mu\text{g}/\text{m}^3$ at the mine's boundary. Thus impacts to air quality and visibility resulting from the mining operation should not be significant.

Black Butte Creek Project. By using the nomograph for Wyoming coal leasing (PEDCO Environmental, Inc., 1981), a maximum off-site total suspended particulate (TSP) concentration of $20 \mu\text{g}/\text{m}^3$ average geometric mean was calculated. It can be predicted that TSP concentration within pit areas would reach and exceed the $60 \mu\text{g}/\text{m}^3$ secondary standard. Levels of fugitive dust drop rapidly with distance, and it is estimated that ambient concentrations should not exceed $34 \mu\text{g}/\text{m}^3$ at the mine's boundary. Impacts to air quality and visibility resulting from the mining operation should not be significant.

Topography

During mining, the topography would be characterized by open pits, steep slopes, spoil piles, and haul roads in each project area.

Geology

Coal. Approximately 44.9 million tons of Federal coal reserves would be removed from the project areas. An additional 5.6 million tons of State coal (Beans Spring Project) and 0.5 million tons of private coal (Black Butte Creek Project) would be mined concurrently. Strip mining would result in the loss of the geologic record in each project area.

Minerals Other Than Coal. Conflicts may arise between developers of the oil and gas resource and the coal resource in the project areas. Any conflicts would have to be settled by the parties involved.

Water Resources

Ground Water. Mining impacts caused by each project would be similar to what other mines have created in Wyoming. The possible exception is their location in an aquifer recharge system (i.e., the Rock Springs Uplift). Although insufficient data exist to accurately determine scope of impacts, ground water outside the mine boundaries could be affected. The pit areas may serve as pollution sources for ground water originating and percolating outward. The replaced spoils material would allow

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greater leaching of the material and thus ground water from the spoils material would be unusable for domestic supplies.

Due to the relative size of the mines compared to the aquifer system, any impacts on water quality are not expected to extend more than one mile down dip from any mine.

Surface Water. Surface disturbance in each project area would increase sediment loading in nearby drainages. The Killpecker Creek area near the Table Project mine already has sediment yield problems and could be considerably affected.

Flood Plains

Beans Spring Project. Mining activity and associated facilities could have a significant impact, if they are located within 100 feet of the Salt Wells Creek flood plain.

Table Project. Location of the proposed rail route across the Killpecker Creek could lead to increased gullying and headcutting in a flood-prone drainage.

Black Butte Creek Project. Location of the proposed rail route along Salt Wells Creek in an area designated as critical due to its poor stability would cause further erosion and stability problems.

Soils

Physical characteristics and availability of topsoil is of primary importance to the reclamation potential of these projects. Small amounts of suitable topsoil material are available in each project area; thus, topsoil losses due to mining the three projects would be a major impact.

Vegetation

The major impact to vegetation would be the physical removal of plants and topsoil. Approximately 7,533 acres would be disturbed by mining activities. This impact would be mitigated somewhat by concurrent reclamation. However, production would take some time to reach the predisturbance level and the establishment of a stable community is expected to take approximately 50 years after initial reclamation. Final reclamation would not be started until each mine is closed.

Both mines near the PRLA areas have ongoing reclamation plans; however, the companies are experiencing some difficulty in their reclamation programs. Reclamation in any area with an annual precipitation rate of less than 9 inches is considered extremely difficult owing to a combination of the low precipitation, the potential for drought events, the pressures from livestock and wildlife grazing, and several other factors.

The transportation alternatives would remove the vegetation on approximately 1,309 acres of rights-of-way (ROW), with about 373 of these acres being disturbed over the long term.

Wildlife

Beans Spring Project.

Mule Deer. On-site mining operations (surface) and associated activities within the PRLAs would result in the loss of 4,700 acres of mule deer winter range, causing the probable loss or displacement of 100-110 mule deer. This loss would severely impact the entire herd. The proposed rail route would cross 14 miles of mule deer winter range. Increased vehicular traffic (i.e., employees driving to and from work) would cause increases in deer mortality due to vehicle/animal collisions.

Antelope. The Gap Creek drainage, through Titsworth Gap, is a heavily used migration route for antelope which move from the higher elevations on Mellor Mountain and surrounding areas to winter range in the Tommy James Basin. Mining operations resulting from the proposed action would force pronghorn to seek alternate less preferred migration routes. The preferred rail route would cross 8 miles of antelope winter range.

Sage Grouse. Sage grouse habitat would be disturbed and/or eliminated causing a reduction in the sage grouse population within the area. A portion of the preferred rail route runs parallel to Salt Wells Creek which provides crucial habitat for grouse populations.

Raptors. The preferred railroad route would enter 9 buffer zones established for prairie falcon (2 nests) and golden eagle nests (7). These buffer zones, of up to one mile in radius, are designed to provide raptors with an undisturbed area for foraging and other nesting activities. Disturbance of these buffer zones could cause abandonment of the nest site or reduced productivity.

Table Project.

Deer. Vegetation loss to all mining operations would reduce winter range carrying capacity for deer by about 504 deer AUMs or about 101 animals. This represents 5% of the population of the herd. Approximately 1,200 acres of "important" winter range would be lost.

Elk. Mining would remove important browse and cover from about 1,200 acres of elk winter range. In addition, elk could be displaced within 0.2 to 0.9 of a mile, depending on slope and terrain, of human activity. Disturbance would also displace elk calving activities from the Cedar Canyon area. Approximately 30 elk move through the PRLA between

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Indian Gap to areas south and east of the PRLA. The effect of mining and associated activities on elk movements cannot be determined at this time.

Raptors. Six nesting raptor species would be affected by various phases of coal extraction activities. Kestrels are most abundant with four nests on the PRLA and ten within a one-half mile radius of the project area boundary. Three active prairie falcon nests are found on the PRLA along with two golden eagle, two great-horned owl, two red-tailed hawk, and one ferruginous hawk nests. All activities would affect reproduction and nesting activities during the period of March 15 through June 30. Strip mining and associated activities would destroy 14 nesting sites and would have detrimental effects (possible abandonment) on 22 additional nests.

Black Butte Creek Project.

Sage Grouse. Mining activity would reduce sage grouse populations in the area; specific populations and distributions cannot be quantified.

Raptors. There would be considerable problems and major impacts along the proposed railroad route along Cutthroat Draw and Salt Wells Creek. The proposed route would seriously disrupt nesting and foraging activities of raptors in this area.

Aquatic Wildlife

No impacts to fisheries habitat would occur due to mining and associated activities in the Table and Black Butte Creek project areas.

Beans Spring Project. Speckled dace, longnose dace, and mountain sucker could be impacted by the proposed mining activity. The aquatic habitat could possibly be eliminated or severely impacted if mining operations are not properly handled along the creeks and at stream crossings.

Livestock Grazing

Approximately 1,770 total AUMs would be lost due to surface disturbance, caused by these mines and their associated facilities and rail routes.

Beans Spring Project. Mining the Beans Spring area would result in a loss of 518 AUMs (from 4,700 acres) of livestock grazing for a minimum of 30 years (392 AUMs on Federal lands, 126 AUMs on State lands). After mine operations cease, the AUMs would become available again as revegetated lands return to production.

The 518 AUMs of forage lost to the Beans Spring Mine amount to 9.1 percent of total AUMs available to livestock producers using the Salt Wells Creek Allotment and less than one percent of the total AUMs available in the Vermillion Creek Al-

lotment. Impacts to livestock operators would range from a reduction in the space available to an actual reduction in the licensed use. No adjustments would be necessary to operators in the Vermillion Creek Allotment, but the operators in the Salt Wells Allotment (Salt Wells Livestock Company and Ramsey Ranch) would be faced with a nine percent reduction. Using a six-month grazing period, the reduction of 414 AUMs in the Salt Wells Allotment would be equivalent to a maximum reduction of 69 cows.

Table Project. Mining activities, including the development of a two-mile railroad spur, would result in the loss of 175 to 200 AUMs of forage. A few head of livestock could be lost in each year in vehicle/animal collisions. No hardships to livestock permittees would occur with proper mitigation.

Black Butte Creek Project. Approximately 50 AUMs would be lost to livestock grazing owing to strip mining, the haul road, and loadout facilities. An additional 12 to 14 AUMs would be lost in the development of the preferred rail alternative. Livestock losses due to collisions with coal trains are expected to be negligible.

Cultural Resources

Beans Spring Project. As the proposed rail spur nears the existing UPRR, it would cross the Overland Trail near Patrick Station. If this alternative is chosen, care must be used in placement of the spur to avoid impact to Patrick Station and to limit impact to the Overland Trail.

Table Project. Large and complex National Register quality prehistoric properties located in the Cedar Canyon ACEC could be adversely affected without mitigation (see Chapter I and mitigation section of this chapter).

Black Butte Creek Project. A Class III inventory would be necessary to evaluate the potential impacts of the proposed mine and transportation system on cultural resources.

Land Uses

Implementation of the proposed actions would change the existing land use in each project area from livestock grazing and wildlife habitat to mining activities and coal transportation. Possible relocation of existing rights-of-way (ROWs) could result in additional changes from livestock and wildlife uses.

Beans Spring Project. The proposed rail route would benefit the development of future strip mines in the area. The route also follows BLM proposed

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utility corridors. Four existing ROWs could be affected by mining.

Table Project. Four existing ROWs could be affected by mining.

Black Butte Creek Project. The strip mining operation would have a beneficial impact in this case. Marginal grazing land would receive more intensive use in developing Federal energy resources. The proposed route would go through Cutthroat Draw, then northward to connect with UP's mainline. This route would probably be acceptable considering only the proposed action and not the transportation needs of the general area for energy development. County Road 4-26 may be affected by mining.

Socioeconomics

Sweetwater County would be the major area impacted by the development of the Beans Spring, Table Project, and Black Butte Creek Mines. Rock Springs and Green River are the major trade centers for the region, and they would be expected to receive a high percentage of the impacts that would occur.

Employment and Income. Table III-5 shows the employment and personal income expected from the development and operation of the three coal mining projects. Construction of the mine facilities is expected to require 99 employees and two years, beginning in 1986. Construction is expected to result in an additional 43 service sector jobs in the local economy.

Construction of the proposed railroad spur for all three mines would require approximately 150 workers and a maximum of six months (linearly interpolated from railroad construction data provided by Richard Castleberry 1981) to complete. No additional service sector jobs would be expected from construction of the three railroad spurs, due to the short construction time required and the high probability that the workforce would be contracted from outside the state. Employment from railroad spur construction is not expected to impact permanent housing requirements.

Coal production is projected to begin in 1988, and production the first year is assumed to be 80 percent of full production levels. Full production is anticipated in 1989, which would require 271 operational employees. Employment from the mining projects is expected to remain stable from 1989 to at least 1998 (mine lives are projected at 32 years for Beans Spring; 30 years for the Table Project; and nine to ten years, as a minimum, for Black Butte Creek). Service sector employment is expected to increase from 172 in 1988 to 216 in 1989.

Total direct and indirect employment is projected at 487 in 1989.

Table III-4 lists employment projections from 1985 to 1990 and shows the contribution that new mine employment would make to total employment. Employment increase from the new mine developments would be the highest in 1988 and 1989 when operational and secondary employment would add an additional 1.4 and 1.8 percent, respectively, to total employment.

Direct and indirect personal income in Sweetwater County (Table III-5) is expected to increase by \$5.49 million and \$4.38 million in 1986 and 1987, respectively, due to the construction of the railroad spurs and new mine facilities. Personal income increase from direct and indirect employment is expected to reach \$11.5 million in 1988, and peak at \$14.5 million (1980 dollars) in 1989. Per capita income is not expected to increase significantly as a result of the additional increased personal income.

Population, Housing, and School Enrollments.

Total population is expected to increase by 309 new residents in 1986 (Table III-6) and remain stable through 1987. This population increase would require 119 new residences (37 bachelor and 82 family units, Table III-6) to provide adequate living quarters for all incoming residents. School enrollments could increase by as much as 107 pupils (Table III-6) in 1986. Larger population increases would be realized in 1988 and 1989 when total population is expected to increase in Sweetwater County by 891 and 1,119 residents, respectively. A total of 301 and 379 new residences would be required in 1988 and 1989 to house the incoming population resulting from mine and service sector employment. Total school enrollments could increase by 334 and 420, respectively, during this same time period. With a vacancy ratio of less than one percent in Rock Springs (Chapter II), a large percentage of the new housing demands could be provided through mobile homes.

The Rock Springs District SEP illustrates the shift toward mobile homes in proportion to total housing stocks in Sweetwater County during the rapid growth period from 1970 to 1979.

Table III-4 shows the estimated breakdown of additional population, school enrollments, and housing in Rock Springs, Green River, and the balance of Sweetwater County. Rock Springs is expected to receive 66 percent of the population increase, with Green River and the rest of Sweetwater County receiving 24 and 10 percent, respectively, of the total population increase. The mining projects are projected to increase the total Sweetwater County population by 0.5 percent during mine construction

Table III-5

EMPLOYMENT AND PERSONAL INCOME RESULTING FROM THE DEVELOPMENT OF
THE THREE COAL MINING PROJECTS

	1986	1987	1988	1989
Employment				
Direct Construction and Operational Employment <u>1/</u>				
Beans Spring Mine	55	55	120	150
Black Butte Creek Mine	14	14	30	38
Table Project Mine	30	30	66	83
Secondary Employment <u>2/</u>	43	43	172	216
Total Employment	142	142	388	487
Personal Income				
Increase in Direct Personal Income <u>3/</u>				
Beans Spring Mine	2,014,860	1,411,685	3,355,080	4,193,850
Black Butte Creek Mine	380,727	359,338	838,770	1,062,442
Table Project Mine	911,179	770,010	1,845,294	2,320,597
Increase in Secondary Income <u>4/</u>	2,183,957	1,839,376	5,501,262	6,905,342
Total Income Increase	5,490,723	4,380,409	11,540,406	14,482,231

1/ Construction employment is at 55 employees per one million to per year coal production from coal developments analyzed in the Environmental Statement for the Development of Coal Reserves in Southwestern Wyoming (BLM 1978). Construction time averaged 2 years per project. Operational employment provided by the initial showing for the Beans Spring Coal PRLA and the BLM Input/Output Model for Sweetwater, Carbon, and Albany Counties.

2/ Indirect construction and operational employment multiplier of 0.45 and 0.80, respectively, from the BLM Input/Output Model for Sweetwater, Carbon, and Albany Counties.

3/ Personal income from direct employment estimated from weekly wages of \$493.60 per week for construction workers and \$537.68 per week for mine employees in Sweetwater County (Fourth Quarter 1980 State and County Summary of Covered Employment and Total Payrolls by Industry).

4/ Secondary income includes direct wages paid service sector employees (wages averaged \$228.85 for service and retail industry employees in Sweetwater County as reported by the Fourth Quarter 1980 State and County Summary of Covered Employment and Total Payrolls by Industry) and income generated through spending in the local economy. Indirect and induced (Type II) income multipliers of 0.45 and 0.36 were derived for construction and operational employees income, respectively, from the BLM Input/Output Model for Sweetwater, Carbon, and Albany Counties.

Table III-6

POPULATION INCREASE, HOUSING REQUIREMENTS AND ADDITIONAL SCHOOL ENROLLMENTS
RESULTING FROM THE DEVELOPMENT OF THE THREE COAL MINING PROJECTS

	1986	1987	1988	1989
Population Increase				
From Direct Employment <u>1/</u>				
Beans Spring Mine	137	137	355	444
Black Butte Creek Mine	35	35	88	112
Table Project Mine	75	75	195	245
From Secondary Employment <u>2/</u>	62	62	253	318
Total Population	309	309	891	1,119
Additional Housing Requirements <u>3/</u>				
	Bachelor Residences	Bachelor Residences	Bachelor Residences	Bachelor Residences
	Family Residences	Family Residences	Family Residences	Family Residences
Beans Spring Mine	21	21	25	32
Black Butte Creek Mine	5	5	6	8
Table Project Mine	11	11	14	17
Total Housing Requirements <u>3/</u>	119	119	301	379
Additional School Enrollments <u>4/</u>				
Beans Spring Mine	60	60	186	233
Black Butte Creek Mine	15	15	46	58
Table Project Mine	32	32	102	129
Total Enrollment Increase	107	107	334	420

- 1/ Population resulting from construction employment is based on a ratio of 35% single employees to 65% married employees. Family size is estimated at the national average of 3.3. Population resulting from operational employment is based on a ratio of 15% single employees and 85% married employees. Family size is estimated at the national average of 3.3.
- 2/ Population resulting from service sector employment is estimated at 50%, assuming half the employment will be provided from spouses and children of families in the region. The additional population from the remaining 50% of service sector employment is based on a ratio of 15% single employees and 85% married employees. Family size is estimated at the national average of 3.3.
- 3/ All single status employees are assumed to require a bachelor residence, and all married employees are assumed to require a family residence.
- 4/ School enrollments are calculated using an average of 1.3 children per family, and all children are of school age (this is a worse case basis).

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and 1.7 and 2.1 percent in 1988 and 1989, respectively. Sixty-six percent of the new housing and additional school enrollments would be required in Rock Springs, with the remaining 34 percent divided between Green River (24 percent) and the balance of Sweetwater County (10 percent).

Infrastructure and Social Services. The major impact on public and social services would be realized in 1988 and 1989 when the largest population increases are expected to occur, although less severe impacts would begin in 1986. Additional pressure would be placed on police and fire protection services; medical, recreational, highway, and sewage treatment facilities; and other municipal and local services. As an example, if medical services are to meet current Health, Education and Welfare (HEW) standards (one licensed physician per 1,000 populace, one dentist per 1,600 populace, one registered nurse per 386 populace); one new physician, one dentist, and four registered nurses would be required in 1989 to meet the additional health care need of the population resulting from the new mines. One additional police officer would be required in 1989 to meet the law enforcement requirements of the incoming residents (the Governor's Planning Committee on Criminal Administration considers 1.5 officers per 1,000 persons adequate).

Revenues and Taxes. Sales of coal from the three proposed mines would return \$24.5 million (1980 dollars) per year starting in 1989 (average coal price was \$14 per ton, pers. comm., Woody Renner of the Ad Valorem Tax Department, State of Wyoming 1981) in Sweetwater County. Direct revenues of \$24.5 million are expected to produce an additional \$15.5 million (business multiplier of 1.631 from BLM Input/Output Model for Sweetwater, Carbon, and Albany Counties) in indirect revenues from business spending in the local economy.

Royalties are collected at a rate of 12.5 percent on all new surface coal production on Federal lands. This amounts to \$3.06 million annually on the projected 1.75 million tons of coal produced from the three mines (Table III-7). One-half of the Federal royalties or \$1.53 million would be returned to the state of Wyoming.

Ad valorem production tax and severance tax collectable on new coal production in 1988, 1989 and 1990 is shown in Table III-7 (based on a 1980 coal price of \$14 per ton and mill levy and severance tax rate of 64.99 and 10.5 percent, respectively). A total of \$829,519 and \$1,036,899 in ad valorem production tax would be expected in 1989 and 1990, respectively. Severance tax of \$1,340,199 and \$1,679,249 is expected in 1988

and 1989, respectively, from coal produced in the three proposed mines.

Additional revenues would be received from ad valorem property taxes levied on facilities and equipment. Purchases of equipment and supplies from local suppliers would produce additional sales tax revenues for the county and the state. Mine employees would also purchase homes and pay property and sales taxes in the county.

Cumulative Impact Analysis

The major cumulative impacts of coal development under the proposed actions are shown in Table III-8. Socioeconomic impacts are shown in the preceding tables. The assumption is made that the proposed actions would not conflict with other coal development in Sweetwater County, and that market conditions would allow development of any approved lease to proceed without delays or the necessity to close the mines for any long periods of time.

Impacts of Alternate Transportation Systems

Beans Spring Project

Gap Creek Alternative.

Water Resources. Location of the haul route along Salt Wells Creek could lead to increased gullying and headcutting in a drainage classed as having poor stability rating (Salt Wells URA). Accelerated erosion would result in increased sediment and thus higher total dissolved solids level in Salt Wells Creek.

Vegetation. The rail transportation alternative along Gap Creek would disturb three major plant communities as follows:

Mule Deer. This alternative rail route would traverse 15 miles of mule deer winter range. Impacts would result from direct loss through collisions, removal of vegetation, and disturbance caused by increased activity. Disturbance to wintering mule deer has been shown to increase stress, thereby increasing mortality during critical periods.

Antelope. This alternative route would increase disturbance to antelope populations; however, the impacts would be less severe than for mule deer.

Sage Grouse. Habitat and population distribution would be affected by this alternative. A large portion of this route would parallel drainages which provide crucial habitat for grouse populations.

Table III-7

TAXABLE PRODUCTION AND REVENUE FROM THE DEVELOPMENT OF THE THREE COAL MINING PROJECTS

	1988			
	Production <u>1/</u>	Ad Valorem Production Tax <u>2/</u>	Severance Tax <u>3/</u>	Federal Royalties <u>4/</u>
Beans Spring Mine	700,000	\$ 460,844	\$ 744,555	\$ 1,400,000
Black Butte Creek Mine	175,000	115,211	186,139	350,000
Table Project Mine	385,000	253,464	409,505	770,000
Total All Mines	1,260,000	829,519	1,340,199	2,520,000

	1989			
	Production <u>1/</u>	Ad Valorem Production Tax <u>2/</u>	Severance Tax <u>3/</u>	Federal Royalties <u>4/</u>
Beans Spring Mine	875,000	\$ 576,055	\$ 930,694	\$ 1,750,000
Black Butte Creek Mine	218,750	144,014	236,673	437,500
Table Project Mine	481,250	316,830	511,882	962,500
Total All Mines	1,575,000	1,036,899	1,679,249	3,150,000

1/ Taxable production is calculated from total production less the value of royalties at 12.5 percent (coal valued at \$14/ton).

2/ Calculated using the 1980 mill levy of 64.99 (State of Wyoming 1980 Annual Report Department of Revenue and Taxation, Ad Valorem Tax Division). Ad valorem production taxes are collected in the year following production.

3/ Severance tax calculated using the 1980 tax rate of 10.5 percent (State of Wyoming 1980 Annual Report, Department of Revenue and Taxation, Ad Valorem Tax Division).

4/ Federal royalties are calculated at 12.5 percent of the market price at the mine.

Table III-8

CUMULATIVE IMPACTS OF COAL DEVELOPMENT UNDER PROPOSED ACTIONS

	1980 Cumulative	1985	1986	1987	1988	1989	1990
Acres of Surface Disturbance (assuming reclamation)	3,852	4,101	5,041	5,796	6,009	6,222	6,435
Millions of Tons Mined	236.97	302.76	316.79	324.12	339.30	441.05	442.80
Acres of Deer Crucial Habitat Disturbed	0	0	755	1,510	1,736	1,962	2,188
Number of Elk Displaced	54	54	84	84	84	84	84
Number of Cultural Sites Lost ^{1/}	59	76	88	100	104	108	112
Livestock Grazing AUMs Lost ^{2/}	257	273	336	386	401	415	429

^{1/} Estimated on the basis of low site density potential.

^{2/} Calculated by using District average of 15 acres per AUM.

ENVIRONMENTAL CONSEQUENCES

Raptors. This alternative route would probably enter buffer zones established for prairie falcon (4) and golden eagle (16) nests.

Threatened and Endangered Animals. The rail route would pass near five known prairie dog colonies. These colonies as well as any other colonies disturbed by construction would have to be surveyed for black-footed ferrets, an endangered species.

Cultural Resources. Few Class III inventories have been conducted along the Salt Wells Creek terraces, but such topographic features are generally regarded as high site potential zones. Site 48SW3220, which could be affected by this alternative, records the visible remains of a one-room sandstone masonry structure, fenceline, and extensive historic trash dump. The remains may be John Blair's cabin, which was occupied in the 1880's, and is of historic importance in the area. A National Register determination, in keeping with SHPO guidelines, would be needed if any proposed construction could impact the site.

This route runs parallel to Highway 430 for over 12 miles in the vicinity of Camel Rock. This modern road follows the route of the Rock Springs-Brown's Park historic road; thus this route could present a possible conflict with historic trail preservation.

Livestock Grazing. Under this alternative 147, 27, and 93 acres of Federal, State, and private land, respectively, would be disturbed by development of the railroad spur. This would result in the loss of approximately 12, 2, and 8 AUMs (an estimated 12 acres are required to produce one AUM) on Federal, State, and private lands, respectively. This spur would be approximately three miles longer than the proposed alternative route.

Socioeconomics. Under this alternative construction employment in 1986 would increase by six employees due to the construction of an additional three miles of railroad spur. This would result in approximately \$38,500 of additional direct personal income spending in the region.

Joyce Creek Alternative.

Water Resources. See Gap Creek Alternative.

Vegetation. This alternate transportation railroad route would disturb 190 acres of greasewood community, 53 acres for the life of the project; 180 acres of sagebrush, 50 acres for the life of the project; and 165 acres of Nuttall's saltbush, 44 for the life of the project.

Mule Deer. This route would traverse six miles of mule deer winter range. Impacts would result from direct loss through traffic collisions, removal of vegetation, and disturbance caused by increased activity. Disturbance to wintering mule deer has

been shown to increase stress, thereby increasing mortality during critical periods.

Antelope. The area the rail route would cross is traversed by summer range and migration routes. The route would increase disturbance to antelope populations; however, the impacts would be less severe than they would be for mule deer.

Sage Grouse. Sage grouse habitat occurs throughout the area impacted and population distribution would be affected by all alternatives. Portions of the route parallel drainages which provide crucial habitat for grouse populations.

Raptors. This alternative route would pass through 11 golden eagle and 2 prairie falcon nest buffer zones.

Threatened and Endangered Animals. The route passes near three known prairie dog colonies. These colonies as well as any other colonies disturbed by construction would have to be surveyed for black-footed ferrets, an endangered species.

Cultural Resources. The area appears to be part of a low site density zone.

Livestock Grazing. A total of 153, 27, and 80 acres of Federal, State and private land, respectively, would be disturbed if the railroad spur proposed in this alternative were developed. This would result in the loss of approximately 13, 2, and 7 AUMs on Federal, State and private lands, respectively. This spur would be approximately two miles longer than the proposed alternative.

Socioeconomics. Adoption of this route would require the construction of an additional two miles of railroad spur. This would require an additional four employees in 1986 and result in approximately \$25,600 in additional direct personal income spending in the region.

Mellor Mountain Alternative.

Vegetation. This alternative haul route would have minimal impacts on the vegetation. The impacts would generally be associated with the widening and resurfacing of existing roads. If the roads are paved, the impacts from fugitive dust would be minimal.

Mule Deer. The route would traverse six miles of mule deer winter range. Impacts would result from direct loss through collisions, removal of vegetation, and disturbance to animals because by increased activity. Disturbance to wintering mule deer has been shown to increase stress thereby increasing mortality during critical periods.

Antelope. See Joyce Creek Alternative.

Sage Grouse. See Joyce Creek Alternative

ENVIRONMENTAL CONSEQUENCES

Cultural Resources. An immediate problem with this alternative arises in section 31, T. 14 N., R. 104 W., where Western Wyoming College has identified an extensive prehistoric site dating to the Alti-thermal period that would be in this ROW. This site, 48SW2590, has been determined eligible for the National Register by BLM and SHPO, and avoidance of site may prove difficult as the site is 3/4 mile long, north to south, by 1/4 mile wide, east to west.

The Kanda-Clay Basin pipeline survey (Gardner and Newberry-Creasman 1981) indicates that no or few sites should be encountered on the high, barren ridges in this area. Juniper breaks and adjacent areas are high site potential zones and significant sites might be found.

Wild Horses. Five horses could be killed in collisions each year.

Livestock Grazing. Development of the proposed haul road would disturb 64, 14, and 5 acres of Federal, State and private lands, respectively. This would result in the loss of 5, 1, and 0.5 AUMs from Federal, State and private lands, respectively. Road kills along the route would be expected to be about 15 animals per year.

Transportation. Truck traffic would cause increases in livestock, wild horse, and wildlife losses due to vehicular/animal collisions of heavy equipment. Transporting coal could result in a need to upgrade U.S. Highway 191.

Socioeconomics. Development of this route would reduce the construction work force to approximately 65 employees (employment estimates were extrapolated from the proposed Amoco sulfur transportation haul road; BLM 1981d) for construction of the nine-mile gravel haul road in 1986. This would reduce direct personal income by approximately \$359,875. Construction of the haul road is assumed to cost \$900,000 (construction cost of a 50-foot-wide gravel road was estimated at \$100,000 per mile). Construction of the haul road would generate revenue for local businesses from the sale of gravel and other construction materials and services.

Conveyor Belt Alternative. The conveyor belt alternative would significantly reduce the damage to the vegetation in the bottom of Gap Creek. Approximately 2-4 acres of Federal land would be disturbed. The disturbance would be for support structures for the conveyor belt. Most disturbance would be in a greasewood/sagebrush community. The loadout facility would disturb approximately 220 acres of sagebrush in Tommy James Basin.

Table Project

Haul Road Alternative. This route would follow the same route as the proposed alternative, but use coal trucks to transport the coal instead of a two-mile railroad spur. Impacts from this alternative are considered to be the same as the proposed alternative with the exception of the following resources:

Air Quality. Coal transportation using a two-mile haul road would result in additional gaseous emissions and fugitive dust dispersion. This is not expected to have a significant impact on air quality.

Socioeconomics. Under this alternative revenue would be generated for local businesses from sales of gravel and other construction materials and services. The haul road is assumed to cost \$400,000 (construction cost of a 100-foot wide gravel road was estimated at \$200,000 per mile). Development of the railroad spur for the preferred alternative would have minor effects on local revenues, due to the use of a contractor and a major portion of the supplies being provided from outside the region.

Black Butte Creek Project

Patrick Draw Rail Route Alternative. Implementation of this alternative would result in a railroad spur that was nine miles shorter in total length and disturb 60 fewer acres than the proposed alternative. Impacts from this route are considered to be the same as the proposed alternative with the exception of the following resources.

Water Resources. This alternative parallels Patrick Draw for a portion of its route, an area reported to be flood prone (Salt Wells URA).

Vegetation. This alternate route would have impacts on the vegetation as follows:

Antelope. The area through which the alternate route passes is yearlong antelope range and important winter antelope range. However, because of the existing road, pipeline, oil and gas wells, utility lines, and vehicular traffic through Patrick Draw, the alternate route would have less of an impact than the proposed route.

Sage Grouse. Sage grouse habitat (both nesting and strutting ground) throughout the area would be impacted and population distributions would be affected by either the proposed alternative or this alternative. However, the alternate railroad route would pass within one-fourth mile of a strutting ground. This route would disturb 60 fewer acres of sage grouse habitat than the proposed route.

Raptors. All nests in the vicinity of the alternate railroad route are located more than one mile from

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the area disturbed. The alternate route would have much less impact than the proposed route.

Threatened and Endangered Animal Species. The alternate route passes near three known prairie dog colonies. A survey of the area was made in 1980 (Biosystems Analysis 1981). No evidence of black-footed ferret activity was found. No known threatened and endangered species would be affected by this action.

Cultural Resources. Numerous Class III oil and gas related inventories have been conducted along this route with only one site, 48SW511, recorded. This site contains a stone circle and impacts could be mitigated with a mapping evaluative testing strategy. The Patrick Draw route appears to occupy a low site density zone preferable to the Salt Wells Creek alignment from a cultural resource management perspective. As with the proposed rail spur, the alternate route would cross the Overland Trail near Bitter Creek, but no stage stations are found in the vicinity. No historic structures or homesteads are known for this area. In general, the alternate route is expected to impact fewer significant or National Register quality cultural resources.

Land Uses. This alternative would have the railroad spur going to the southeast connecting to the railroad spur for the Beans Spring Mine (see Beans Spring SSER, available for review in the BLM Rock Springs District Office.)

Adoption of this alternative would insure an orderly development of coal mining activity between the Black Butte Creek Project and the Beans Spring Project. This route is in agreement with utility corridor planning for the resource area. If this route is selected, the loading facilities should be located on the southeast side of the mine.

Socioeconomics. Under this alternative construction employment in 1986 would decrease by 20 employees due to the construction of a railroad spur nine miles shorter in length. This would result in approximately \$64,150 less direct personal income spending in the region.

Patrick Draw Haul Route Alternative. Implementation of this alternative would result in a haul road (using existing county roads) that is nine miles shorter in total length than the proposed route and have little or no additional disturbance. Impacts from this route are considered to be the same as the proposed alternative with the exception of the impacts identified in the following section.

Air Quality. Additional fugitive dust would result from truck traffic on the haul roads unless the road is paved which would have little impacts on air quality.

Water Resources. See Patrick Draw rail route alternative.

Vegetation. No additional major disturbance of vegetation is expected from upgrading the existing county roads.

Wildlife. This alternative could result in a higher incidence of wildlife losses from collisions with trucks in addition to the impacts outlined under the Patrick Draw rail route alternative.

Livestock. A higher incidence of livestock losses would be expected from livestock collisions with coal trucks.

Cultural Resources. Minimal impacts on cultural resources are anticipated from development of the haul route.

Land Uses. Development of the truck route instead of the railroad spur would have no beneficial effects for development of coal resources to the south of the PRLA.

Transportation. Livestock, wild horse, and wildlife losses could increase as a result of collisions with coal trucks. In addition there would be a greater risk to public health and safety due to the increased traffic and to the higher probability of an accident occurring.

Socioeconomics. Construction employment in 1986 would decrease by approximately 54 employees due to the small amount of construction required to upgrade the existing county roads. This would result in approximately \$109,100 less direct personal income spending in the region.

Beans Spring-Black Butte Creek Alternative

A combination of the Beans Spring Project's proposed route and the Black Butte Creek Project's Patrick Draw alternative rail route would localize impacts to the environment. The two companies would be able to share expenses on the 11 miles of track and the loading facilities that they would have in common. This route would run through the Rock Springs KRCRA and future coal mining projects in this area would also be expected to use this route. If the proposed route for each project were chosen disturbance would occur along 61 miles of track. If this alternative is chosen disturbance would occur on about 40 miles of track ROW. Use of this alternative would cause less disturbance and reduce total impacts to resources.

PROPOSED MITIGATION

Mitigating measures not included in each proposed action are identified in this section. These

ENVIRONMENTAL CONSEQUENCES

measures could be applied to reduce or eliminate the adverse impacts resulting from implementation of one or more of the alternatives.

State and Federal regulations governing surface coal mining are very explicit, and compliance with these regulations will minimize the need for additional environmental mitigation. The following mitigation is proposed by BLM to supplement State and Federal regulations and thereby further reduce or eliminate adverse environmental impacts.

Air Quality

The following mitigation would minimize fugitive dust:

1. Seed stockpiles of topsoil with annuals to retard wind erosion until backfilling of the mined area occurs;
2. Seed reclaimed areas with a perennial seed mix into a live mulch of oats, barley or wheat.
3. Each company should apply best available control technology, as economically feasible, in mining operations.

Topography

Spoils from the initial cut would be placed on the uphill side of the cut to avoid loss over the edge of the ridges. All spoils should be put back in the pit and regraded prior to the termination of mining activities.

Water Resources

Zero discharge concept should be employed for all disturbed areas within the PRLAs. This would eliminate water quality degradation that would result from runoff from these areas having newly exposed alkaline soils. All impacts to flood plains would be mitigated by following applicable rules and regulations of the Wyoming Department of Environmental Quality, Land Quality Division, 1981.

Table Project

Protection of Ground Water. Before mining and associated activities begin, observation wells would be installed in the mining area to evaluate the aquifers affected. Water quality monitoring would continue during mining and reclamation. Any water accumulations in open pits would be properly treated

before being discharged. The quantity would be kept at a minimum.

Protection of Surface Waters. An adequate water quality monitoring program would be established in Killpecker Creek and Pine and Cedar Canyons. These drainages should not be disturbed by mining or related activities. If disturbance is likely to occur the channels would be rerouted and designed to provide adequate drainage. All permanent roads would be ditched where possible to control any runoff. Water bars would be constructed where BLM, the Office of Surface Mining, and the State determine they are necessary.

Runoff from disturbed areas and water discharged from the pits would be collected and treated in sediment basins. Any seepage from the sediment basins would be monitored in order to determine if it would have a harmful effect on surface water quality. Any impoundments would be built in accordance with all applicable State and Federal law and regulations. Discharges from the impoundment could not unreasonably degrade water quality of the receiving stream.

Any toxic, acid or alkali forming materials encountered during mining would be covered with a layer of neutral material of a sufficient depth to ensure containment of these materials.

The rail route would be constructed to minimize increases in soil erosion. The company should be aware of flood potential of Killpecker Creek and design its bridge accordingly.

Black Butte Creek Project

Protection of Ground Water. Before mining and associated activities begin observation wells would be installed in the mining area to evaluate the aquifers affected. Water quality monitoring would continue during mining and reclamation. Any water accumulations in open pits would be properly treated before being discharged. The quantity of toxic material placed below ground level would be kept at a minimum.

Protection of Surface Waters. An adequate water quality monitoring program would be established in Black Butte Creek. This drainage should not be disturbed by mining or related activities. If disturbance is likely to occur the channel would be recontoured and designed to provide adequate drainage.

All permanent roads would be ditched where possible to control any runoff. Water bars would be constructed where BLM, Office of Surface Management (OSM), and the State determine they are necessary.

ENVIRONMENTAL CONSEQUENCES

Runoff from disturbed areas and water discharged from the pits would be collected and treated in sediment basins. Any seepage from the sediment basins would be monitored in order to determine if it would have a harmful effect on surface water quality. Any impoundments should be built in accordance with all applicable State and Federal laws and regulations. Discharges from the impoundment could not unreasonably degrade water quality of the receiving stream.

The rail route would be constructed to minimize increases in soil erosion and head cutting of channels. The company should be aware of the flood potential of Black Butte and Salt Wells Creeks and design facilities and rail routes accordingly.

Vegetation

Beans Spring and Black Butte Creek Project

Rehabilitation of temporarily disturbed areas (i.e., ROWs, etc.) should begin immediately. These areas should be seeded either late in the fall (September 15-November 15) or as early as possible the following spring to take advantage of available moisture. Seed mixtures should include site-specific seed mixtures for each type of community.

Some mixtures such as bitterbrush and mountain mahogany may require seedlings instead of seeding for successful establishment. Proposed plants from which seed mixtures should be selected are listed in Table III-9 (Beans Spring Project), Table III-10 (Black Butte Creek Project), and Table III-11 (Table Project).

A reclamation plan for the actual coal mine area is required by Wyoming DEQ before a mining permit is granted. Although the BLM does not have jurisdiction over the plan, it is recommended that the above noted seed mixtures be utilized for various areas of the mine in order to return the area to productive rangeland. Reclamation should begin no later than two years after individual pits are abandoned.

Wildlife

Beans Spring Project

Application of the unsuitability criteria had resulted in the determination that the Beans Spring coal area would be unsuitable for surface mining methods of coal based on Criterion 15 (mule deer winter range) because it was felt the surface mining methods and associated ancillary facilities could not be

adequately mitigated for wildlife. A more detailed analysis of the area and application of exceptions to this criterion resulted in the following mitigation for coal development:

The lessee would be required to mitigate for mule deer, antelope, sage grouse, and raptor habitat loss and disturbance due to surface mining operations.

Concurrently with the filing of its mine plan, the lessee would submit for approval by the BLM, a habitat recovery and replacement plan designed to protect and/or enhance wildlife habitat for the above-named species. Additionally, the lessee would be required to survey any of the alternate railroad routes (i.e., along Salt Wells Creek) for prairie dog colonies and black-footed ferrets, if an alternate route outside previously surveyed areas is chosen. Ferret surveys must be made within one year of each area disturbed.

Mitigation methods may require the lessee to employ techniques for wildlife forage manipulation or intensive wildlife habitat management. Habitat recovery may not be completely feasible in the permit area; therefore, recovery or replacement may be accomplished on lands made available through the surface management agency, the State, or the lessee outside the permit area in combination with recovery and replacement methods on suitable lands within the permit area. Concurrent with the filing of its mine plan, the lessee would submit for approval by the BLM a habitat recovery and replacement plan designed to protect and/or enhance wildlife habitat.

The habitat recovery and replacement plan would include a habitat analysis of the permit area which identifies important wildlife species and habitats.

(1) A detailed description of the methods selected by the lessee to mitigate habitat loss, together with a comparative analysis of alternate methods which were considered and rejected by the lessee and the rationale for the decision to select the proposed methods. The replacement may include, but are not limited, to the following techniques:

- (a) Increasing the quantity and quality of forage available to wildlife.
- (b) The acquisition of wildlife crucial habitats.
- (c) Manipulation of wildlife habitat to increase its carrying capacity for selected wildlife species.
- (d) Recovery, replacement, or protection of important wildlife habitat by selected fencing.

(2) A timetable giving the periods of time which would be required to accomplish the habitat re-

Table III-10

PROPOSED PLANTS FROM WHICH SEED MIXTURES SHOULD BE
SELECTED FOR BLACK BUTTE CREEK

Common Name

Botanical Name

Greasewood/Nuttall's Saltbush Communities

Grasses

western wheatgrass
Nuttall's alkaligrass
squirreltail
alkali sacaton
Indian ricegrass
Sandberg bluegrass

(Agropyron smithii)
(Puccinellia airoides)
(Sitanion hystrix)
(Sporobolus airoides)
(Oryzopsis hymenoides)
(Poa sandbergii)

Forbs

onion
phlox
erilogonum
scarlet globemallow

(Allium textile)
(Phlox hoodii)
(Eriogonum brevicaulis)
(Sphaeralcea coccinea)

Shrubs

winterfat
Nuttall's saltbush*
fourwing saltbush*

(Eurotia lanata)
(Atriplex nuttallii)
(Atriplex canescens)

Sagebrush Community

Shrubs

fourwing saltbush*
rubber rabbitbrush*
antelope bitterbrush*
big sagebrush*
Douglas rabbitbrush

(Atriplex canescens)
(Chrysothamnus nauseosus)
(Purshia tridentata)
(Artemisia tridentata)
(Chrysothamnus viscidiflorus)

Forbs

arrowleaf balsamroot
alfalfa
penstemon
phlox

(Balsamorhiza sagitata)
(Medicago sativa)
(Penstemon arenicola)
(Phlox hoodii)

Grasses

intermediate wheatgrass
thickspike wheatgrass
bottlebrush squirreltail

(Agropyron intermedium)
(Agropyron dasystachyum)
(Sitanion hystrix)

* Most successful when established as seedlings.

Table III-9

PROPOSED PLANTS FROM WHICH SEED MIXTURES SHOULD BE
SELECTED FOR BEANS SPRING PROJECT

Common Name

Botanical Name

Greasewood/Nuttall's Saltbush Communities

Grasses

western wheatgrass	(<u>Agropyron smithii</u>)
Nuttall's alkaligrass	(<u>Puccinellia airoides</u>)
squirreltail	(<u>Sitanion hystrix</u>)
alkali sacaton	(<u>Sporobolus airoides</u>)
Indian ricegrass	(<u>Oryzopsis hymenoides</u>)
Sandberg bluegrass	(<u>Poa sandbergii</u>)

Forbs

onion	(<u>Allium textile</u>)
phlox	(<u>Phlox hoodii</u>)
erigonum	(<u>Eriogonum brevicaule</u>)
scarlet globemallow	(<u>Sphaeralcea coccinea</u>)

Shrubs

winterfat	(<u>Eurotia lanata</u>)
Nuttall's saltbush*	(<u>Atriplex nuttallii</u>)
fourwing saltbush*	(<u>Atriplex canescens</u>)

Sagebrush Community

Shrubs

fourwing saltbush*	(<u>Atriplex canescens</u>)
rubber rabbitbrush*	(<u>Chrysothamnus nauseosus</u>)
antelope bitterbrush*	(<u>Purshia tridentata</u>)
big sagebrush*	(<u>Artemisia tridentata</u>)
Douglas rabbitbrush	(<u>Chrysothamnus viscidiflorus</u>)

Forbs

arrowleaf balsamroot	(<u>Balsamorhiza sagitata</u>)
alfalfa	(<u>Medicago sativa</u>)
penstemon	(<u>Penstemon arenicola</u>)
phlox	(<u>Phlox hoodii</u>)

Grasses

intermediate wheatgrass	(<u>Agropyron intermedium</u>)
thickspike wheatgrass	(<u>Agropyron dasystachyum</u>)
bottlebrush squirreltail	(<u>Sitanion hystrix</u>)
needle-and-thread	(<u>Stipa comata</u>)

Juniper-Mountain Shrub Type

Shrubs

antelope bitterbrush*	(<u>Purshia tridentata</u>)
big sagebrush*	(<u>Artemisia tridentata</u>)
fourwing saltbush*	(<u>Atriplex canescens</u>)
mountain mahogany	(<u>Cercocarpus montanus</u>)
Douglas rabbitbrush	(<u>Chrysothamnus viscidiflorus</u>)
rubber rabbitbrush*	(<u>Chrysothamnus nauseosus</u>)

Forbs

arrowleaf balsamroot	(<u>Balsamorhiza sagitata</u>)
penstemon	(<u>Penstemon arenicola</u>)
smooth aster	(<u>Aster glaucodes</u>)
alfalfa	(<u>Medicago sativa</u>)

Grasses

western wheatgrass	(<u>Agropyron smithii</u>)
intermediate wheatgrass	(<u>Agropyron intermedium</u>)
thickspike wheatgrass	(<u>Agropyron dasystachyum</u>)
Indian ricegrass	(<u>Oryzopsis hymenoides</u>)

*More successful when established as seedlings.

Table III-11
PROPOSED PLANTS FROM WHICH SEED MIXTURES
SHOULD BE SELECTED FOR TABLE PROJECT

Sagebrush Community

Shrubs

big sagebrush*	(<u>Artemisia tridentata</u>)
Douglas rabbitbrush	(<u>Chrysothamnus viscidiflorus</u>)
shadscale	(<u>Atriplex confertifolia</u>)
winterfat	(<u>Eurotia lanata</u>)

Forbs

phlox	(<u>Phlox hoodii</u>)
goldenweed	(<u>Haplopappus acaulis</u>)

Grasses

thickspike wheatgrass	(<u>Agropyron dasystachyum</u>)
needle-and-thread	(<u>Stipa comata</u>)
Indian ricegrass	(<u>Oryzopsis hymenoides</u>)
Sandberg bluegrass	(<u>Poa sandbergii</u>)
squirreltail	(<u>Sitanion hystrix</u>)

Sagebrush Community-Rabbitbrush Subtype

Shrubs

Douglas rabbitbrush	(<u>Chrysothamnus viscidiflorus</u>)
big sagebrush*	(<u>Artemisia tridentata</u>)
horsebrush	(<u>Tetradymia spp.</u>)
shadscale	(<u>Atriplex confertifolia</u>)

Forbs

phlox	(<u>Phlox hoodii</u>)
curly dock	(<u>Rumex crispus</u>)

Grasses

Indian ricegrass	(<u>Oryzopsis hymenoides</u>)
thickspike wheatgrass	(<u>Agropyron dasystachyum</u>)
needle-and-thread	(<u>Stipa comata</u>)

Nuttall's Saltbush Community

Shrubs

Nuttall's saltbush	(<u>Atriplex nuttallii</u>)
budsage	(<u>Artemisia spinescens</u>)
winterfat	(<u>Eurotia lanata</u>)
shadscale	(<u>Atriplex confertifolia</u>)

Forbs

phlox	(<u>Phlox hoodii</u>)
onion	(<u>Allium textile</u>)
sandwort	(<u>Arenaria hookeri</u>)

Table III-11
(cont.)

Grasses

Indian ricegrass
squirreltail
Sandberg bluegrass

(*Oryzopsis hymenoides*)
(*Sitanion hystrix*)
(*Poa sandbergii*)

Juniper Community

Shrubs/Trees

juniper
limber pine
ocean spray
sagebrush*
mountain mahogany

(*Juniperus utahensis*)
(*Pinus flexilis*)
(*Holodiscus dumosus*)
(*Artemisia tridentata*)
(*Cercocarpus montanus*)

Forbs

phlox
miners candle
sandwort

(*Phlox hoodii*)
(*Cryptantha spp.*)
(*Arenaria spp.*)

Grasses

bluebunch wheatgrass
thickspike wheatgrass
Indian ricegrass
Sandberg bluegrass

(*Agropyron spicatum*)
(*A. dasystachyum*)
(*Oryzopsis hymenoides*)
(*Poa sandbergii*)

* Most successful when established as seedlings.

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covery or replacement plan and showing how this timetable relates to the overall mining plan.

- (3) An evaluation of the final plan by the Wyoming Game and Fish Department. The State would comment on the methods selected and the techniques to be employed by the lessee and may recommend alternate recovery or replacement methods. If the State has recommended an alternate method, the lessee would consider the State's recommendation and, if the lessee rejects the State's plan, the lessee would indicate its reasons as required by provision 2 above. If no State comment is included in the plan, the lessee would verify its lessee would verify its consultation with the State and the plan may be considered without State comment.

This standard stipulation would be included in the lease, should the decision to allow mining on these PRLAs be made. If this mitigation is conscientiously applied, reproductive capability of the species should be maintained. However, lower population levels may result until the area is fully reclaimed. Over the long term, mule deer would continue to exist in the area.

Route adjustments would be required so the selected coal transportation route would not enter any raptor buffer zones.

Table Project

No surface occupancy would be allowed in areas identified under Criteria 11, 13, and 14 (Map 1-7). No surface occupancy would be allowed on the ACEC area identified as having multiple use conflicts (Map 1-6).

Deer and Elk. Application of the unsuitability process determined the Table Project coal area to be unsuitable for surface mining of coal based in Criterion 15. After applying the exceptions for Criterion 15, the 1,040 acres would be acceptable for coal development subject to the following mitigation: Concurrent with the filing of its mine plan, the lessee would submit for approval by the BLM, a habitat recovery and replacement plan designed to protect and/or enhance elk and mule deer habitat.

The habitat recovery and replacement plan would include a habitat analysis of the permit area which includes an analysis of the quality carrying capacity of the habitat for mule deer.

1. A detailed description of the methods selected by the lessee to mitigate habitat loss, together with a comparative analysis of alternate methods which were considered and rejected by the lessee and the rationale for the decision to select the proposed methods. The methods uti-

lized by the lessee for recovery and replacement may include, but are not limited to the following techniques:

- (a) Increasing the quantity and quality of forage available to mule deer.
- (b) The acquisition of deer and elk crucial habitats.
- (c) Manipulation of low quality deer and elk habitat to increase their carrying capacities.
- (d) Recovery, replacement, or protection of important deer and elk habitat by selected fencing.

2. A timetable giving the periods of time which would be required to accomplish the habitat recovery or replacement plan and showing how this timetable relates to the overall mining plan.
3. An evaluation of the final plan by the Wyoming Game and Fish Department. The State would comment on the methods selected and the techniques to be employed by the lessee and may recommend alternate recovery or replacement methods. If the State has recommended an alternate method, the lessee would consider the State's recommendation and, if the lessee rejects the State's plan, the lessee would indicate its reasons as required by provision 2 above. If no State comment is included in the plan, the lessee would verify its consultation with the State and the plan may be considered without State comment.

Black Butte Creek Project

Recovery of wildlife habitat on the project area would be required. Through consultation with the Wyoming Game and Fish Department and the Governor's Office on coal unsuitability criterion No. 15, the maintenance of sage grouse populations and their habitat was identified as being of primary concern. However, habitat for other game and non-game species is also of some concern. A plan of recovery would be developed in consultation with the authorized officer of the Bureau of Land Management and with the State of Wyoming. The plan shall be basically concerned with sage grouse habitat improvement and development (e.g., watering developments) outside of active mining operation areas and with habitat reclamation, including sagebrush reestablishment, watering developments, etc., on active mining operation areas. The plan should include consideration for other wildlife species and address all portions of the project area. This would include identifying sage grouse use areas and their habitat parameters, and other applicable species; and developing long-term and short-

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term measures for maintaining grouse populations and reestablishing all required habitat components. The plan would be made a part of a plan of mining and reclamation requiring approval of the authorized officer of BLM and the State of Wyoming.

Livestock Grazing

To help mitigate loss of livestock and wildlife AUMs, each company would build water developments to more evenly distribute forage use. Utilization of surface runoff water collected in zero discharge system of each plant site could be used for livestock/wildlife water developments should water quality be acceptable for that purpose.

Pit areas and other working areas would be fenced by the company to exclude livestock, wild horses, and big game animals. The companies should fence seeded areas from livestock until a satisfactory stand of perennial vegetation is obtained.

Cultural Resources

During planning stages a Class III inventory would be required for each coal lease area and transportation route. National Register evaluation of all sites discovered; determinations of effect; and, as appropriate, site-specific mitigation would be required.

Mitigation of the adverse effect to cultural resources entails several preservation or data collection strategies. These strategies are usually considered on a site-specific basis, or in the case of identified archeological districts, for a large block of land as a whole. Common mitigation strategies include: (1) avoidance, (2) controlled surface collection, (3) detailed site mapping and photography, (4) evaluative testing, (5) mitigative excavation, and (6) subsequent analysis.

Table Project

No surface occupancy would be allowed on the Cedar Canyon ACEC area identified as having multiple use conflicts (Map 1-6). Certain types of valuable scientific information can be obtained by construction monitors. Pursuant to Executive Order 11593 and section 202 (c) of the *Federal Land Policy and Management Act of 1976* (FLPMA), it may prove valuable to have an archeologist present during initial construction in some areas. Hearths frequently are exposed on sandy ridgetops or dunal contexts where prior subsurface probes have failed to detect them. Some monitoring of construction may be stipulated for certain areas of the Table

Project land. These types of recommendations would be developed after the Class III inventory has been completed and National Register of Historic Places evaluations have been made on all sites, and haul road locations have been decided upon by the leasee. Significant historic architectural sites are known for the immediate vicinity and fencing off such properties to discourage impact through vandalism may be required.

Land Use

Each company would be responsible for negotiating relocation of ROWs affected by mining activities. Further mitigation regarding Federal lands would be considered pending the results of those negotiations and subsequent permitting process. Conflicts with oil and gas development would need to be settled by the companies involved.

Socioeconomic and Transportation

The lessee would prepare and submit to the BLM concurrently with the filing of its mine plan, a socioeconomic and transportation impact mitigation study, concerning off-site aspects of the proposed development, which would include a factual statement of the following:

- (1) The estimated number of employees the specific lease operation would require during its phases of construction and operation; the estimated multiplied population attendant to that employment; and where that population is anticipated to reside.
- (2) An analysis of the estimated effect of that population influx upon the county and community infrastructure based on information acquired in consultation with state and local government, and including: the transportation system at the county and local level;
 - (a) the domestic water requirements;
 - (b) the domestic sewage treatment facilities and collection system requirements;
 - (c) the requirements on the educational facilities;
 - (d) the requirements the new population would impose upon the fire and police protection systems;
 - (e) county transportation
 - (f) the requirements that the additional population would make on local government service systems, with primary emphasis upon the normal public works of both county and municipal governments;

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(g) the requirements on the human service system;

(h) the requirements imposed upon the parks and recreation system; and

(i) an estimate as to the need, by type and amount of housing which the new population would require on a community by community basis.

(3) A statement of the immediate impacts and long-term effects of mining on transportation facilities within the state, including:

(a) the estimated transportation mode(s), route(s), and frequency of trips for the extracted resource;

(b) contemplated construction of transportation facilities;

(c) the estimated effect of any truck movements on the rate of roadway pavement deterioration, on the design life of the transportation mode on the level of service repair and an overall safety to the motoring public; and

(d) a discussion of those measures which would or could mitigate impact on those transportation modes such as proper signing, lighting, and design or access to and from public roadway(s).

(4) A statement of the perceived roles and responsibilities of the lessee, the affected local governments, and the State of Wyoming, relating to the technical and financial needs of the affected communities.

A determination for completeness would be made by the BLM. The Bureau would make this impact mitigation study available to the State and local governments.

UNAVOIDABLE ADVERSE IMPACTS

1. TSP and gaseous emissions would increase in the vicinity of each project.
2. Terrain features would be modified in each impacted area.
3. Water quality would be lowered by the presence of increased salts and accelerated erosion.
4. Soil structure would be destroyed on each mine site, and soil loss would result from increased erosion.

5. Vegetation in the project areas would be removed (7,533 total acres) by mining activities. The transportation alternatives would remove vegetation on approximately 1,309 acres of ROW. Existing plant successions would be lost.

6. Wildlife losses would result from direct collision with moving vehicles, stress associated with increased activity in each project area.

7. Mining activities would result in the loss of 4,700 acres of mule deer winter range in the Beans Spring Project area and 1,200 acres of "important" winter range in the Table Project area.

8. Mining the Table Project area would result in the loss of 1,200 acres of elk winter range. Elk would be displaced in the winter range surrounding the project area, the extent of which would depend upon human activity and upon slope and terrain.

9. Mining activities on the Table Project would destroy 14 raptor nesting sites and would have detrimental effects (possible abandonment) on 22 additional nests.

10. The Black Butte Creek Project's proposed rail route would disrupt nesting and foraging activities of raptors in the area.

11. There would be a disruption of livestock grazing and a loss of 770 total AUMs in the three project areas.

12. There would be destruction of an unquantifiable number of nonrenewable cultural resources.

13. The visual resource in each project area would be lowered to Class V until reclamation was completed.

RELATIONSHIP BETWEEN SHORT-TERM USES AND LONG-TERM PRODUCTIVITY OF THE ENVIRONMENT

The mining of 44.9 million tons of Federal and 6.1 million tons of State and private coal would result in short-term (a period beginning with on-site construction and ending with post-mining reclamation) and long-term (a period beginning after post-mining reclamation) losses or alterations of natural resources and the human environment.

In the short-term there would be:

1. A reduction in air quality owing to increased fugitive dust and vehicular emissions;

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2. Increased soil erosion and lowered soil productivity on 7,533 acres;
3. The loss of an estimated 770 AUMs due to the removal of native vegetation on 7,533 acres;
4. Wildlife habitat, carrying capacity, and populations lost on 7,533 acres;
5. There would be destruction of an unquantifiable number of nonrenewable cultural resources;
6. A reduction in visual resources to VRM Class V;
7. An increase in employment opportunities and total earned income within Sweetwater County; and
8. Production of 51 million tons of coal to meet the nation's energy needs.

The residual effects of mining on long-term productivity would be:

1. The destruction of an unknown number of cultural resources;
2. A possible increase in AUMs if the area is reclaimed to a more productive state (due to vegetation and water improvements).

IRREVERSIBLE AND IRRETRIEVABLE COMMITMENTS OF RESOURCES

1. The terrain features at the mined site would be permanently modified.
2. Approximately 44.9 million tons of Federal coal and 5.6 million tons of State coal, and 0.5 million tons of private coal would be removed from the three mines. The coal would be utilized and is nonrecoverable.
3. The destruction of the physical structure of the soil would be irreversible.
4. An unquantifiable amount of soil would be lost to wind and water erosion.
5. Wildlife habitat and carrying capacity would be lost on railroad routes.
6. An unquantifiable number of nonrenewable cultural resources would be destroyed.
7. Raptor habitat would be lost on the Table Project area.

CHAPTER IV

CONSULTATION AND COORDINATION

TEAM ORGANIZATION

This environmental assessment (EA) was written by a three-person core team with assistance from an interdisciplinary team. The core team was primarily responsible for preparing this document with technical guidance and input from the special assistance team. Table IV-1 lists the preparers of this EA.

COORDINATION IN PREPARATION OF THE PREFERRED ALTERNATIVES

Each company's initial showing report was used in the preparation of the preferred alternatives. The Bureau consulted with representatives of the companies concerning the use of information in the respective reports and specific problems involved in the use of the public lands.

PUBLIC CONSULTATION AND COORDINATION

The Oneida Railroad Construction Company was consulted concerning the costs and employment requirements for construction of a railroad spur. The average price of Sweetwater County coal was determined in consultation with the Ad Valorem Tax Division of the Wyoming Department of Revenue and Taxation.

The management framework plans (MFPs) and the resource areas' proposed coal decisions were presented to the public for review and comments prior to the preparation of this EA. The MFP recommendations presented at a public meeting December 12, 1980, in Rock Springs by the Big Sandy and Salt Wells Area Managers included proposed coal planning decisions that would affect the areas discussed in this EA.

Proposed coal decisions for the Salt Wells and Big Sandy Resource Areas were published in June 1981, including the results of applying coal unsuitability criteria to the areas, and the public was invited

to comment on the proposals. An open house and public hearing were held during July 1981 in Rock Springs for the purpose of answering public questions about the proposed coal program and receiving written and verbal testimony on the proposed decisions. Final decisions were published in December 1981.

Those planning decisions applicable to the areas analyzed in this document were considered in the preparation of this EA.

REVIEW OF THE EA

Availability of the EA for public review and comment was announced the weeks of April 12 and May 3, 1982, in public notices that appeared in the *Green River Star*, *Rawlins Times*, and *Rock Springs Rocket-Miner*, and in news releases April 12, 1982, to various area news media. A limited number of copies of this EA were made available to the public upon request at the BLM Rock Springs District Office and Salt Wells Resource Area Office. The State of Wyoming, select Federal agencies, and the companies were requested to review the EA, and submit comments to the Team Leader.

The review period was extended at the request of the State of Wyoming. Comments were received from 10 agencies and organizations, and from one individual, listed in Table IV-2.

RESPONSES TO THE COMMENTS

The following section includes substantive comments on the Draft EA received by the BLM. The Bureau has made appropriate text changes as a result of some comments and internal review; other comments have been answered with an explanation. The commentators may be identified by the numbers shown in Table IV-2. The full text of each letter received appears in Appendix B.

Table IV-1
LIST OF PREPARERS

Name	EA Assignment	Position/Expertise	Education	Experience
Dean Stilwell	Team Leader	District Geologist	B.S. and M.S. Geology, University of Nebraska	2 years-BLM; 1 year-private industry; 2 1/2 years-University of Nebraska; 1 year-Nebraska Geological Survey
John S. Young	Core Team	Regional Economist	B.S. Animal Science and M.S. Agricultural Systems, Colorado State University	1 1/2 years-BLM; 1 1/2 years-CSU
Ronald C. Herdt	Core Team/Technical Coordinator	District Technical Writer-Editor	B.A. Secondary Education, University of Northern Colorado	5 years-BLM; 6 years-University of Colorado
Bonnie Wright	Lead Word Processing	AMText-425 Operator/Mag Card II Typist	2 years - Western Wyoming College	2 years-BLM
June Witt	Word Processing	AMText-425 Operator/Mag Card II Typist	B.S. Special Education and Elementary Education, University of Idaho; Office Specialist, Kinman University	1 year-BLM; 1 1/2 years-CIA; 1 year-general
Eugene Jonart	Wyoming State Office Environmental Coordination	State Office Environmental Coordinator	B.S. Forest and Range Management, University of Montana	14 years-BLM
Joe Patti	Wyoming State Office Technical Coordination	State Office Natural Resource Specialist	B.S. Forestry and Range Management, Colorado State University	18 years-BLM
Ann B. Aldrich	Special Assistance Team	District Botanist	B.S. Botany, University of Michigan	2 1/2 years-BLM
Larry Apple	Special Assistance Team	Salt Wells Area Wildlife Biologist	B.S. Fisheries and Wildlife Biology, Iowa State University	3 years-BLM; 3 years-Iowa Department of Environmental Quality
Bruce W. Bsker	Special Assistance Team	District Wildlife Management Biologist	B.A. Biology, California State University, Northridge; M.S. Wildlife Management, Humboldt State University; and PhD Wildlife Ecology, Texas A&M	3 years-BLM
Jared Brandwein	Special Assistance Team	Big Sandy Area Wildlife Biologist	A.B. Biology, Ripon (Wisconsin) College	2 years-BLM; 1 1/2 years-Forest Service; 2 years-Peace Corps
Charles R. (Bob) Crockett	Special Assistance Team	District Range Specialist	B.S. Agriculture, University of Arizona	14 years-BLM
Dean A. Decker	Special Assistance Team	District Archeologist	B.A. and M.A. Anthropology, University of California at Los Angeles	2 years-BLM; 1 1/2 years-Bureau of Indian Affairs (BIA)
Jon M. Dolak	Special Assistance Team	Salt Wells Area Realty Specialist	B.S. Forestry and Range Management, Colorado State University	12 1/2 years-BLM
Jim Dunder	Special Assistance Team	Big Sandy Area Wildlife Management Biologist	B.S. Wildlife Biology, Colorado State University	10 years-BLM; 3 years-Forest Service
Stephen R. Ellis	Special Assistance Team	District Mineral Specialist	B.S. Geology, Weber State College	6 years-BLM
Clifford Franklin	Special Assistance Team	Wyoming State Office Hydrologist	B.S. Watershed Management and Hydrology, Utah State	6 years-BLM; 8 years-Forest Service
Harold E. Johnson	Special Assistance Team	District Outdoor Recreation Planner	B.S. Forestry and M.S. Forest Recreation and Park Management, Southern Illinois University	1 year-BLM; 10 years-Fish and Wildlife Service
Allen Riebau	Special Assistance Team	Wyoming State Office Physical Scientist	A.S. Environmental Technology, North Central Technical, Mansfield, Ohio; B.S. Environmental Studies and M.S. Biological Sciences, Morehead (Kentucky) State	1 year-BLM; 2 1/2 years-Office of Surface Mining; 9 months-Corps of Engineers
David L. Vesterby	Special Assistance Team	District Forester and Fire Management Officer	B.S. Forest Management, Colorado State University	12 years-Forest Service 3 years-BLM; 6 years-private industry
Dave Vlcek	Special Assistance Team	Kemmerer-Pinedale Area Archeologist	B.A. Anthropology, Western Illinois University	1 year-BLM; 10 years-professional field experience
Colin W. Voigt	Special Assistance Team	District Soil Scientist	B.S. Agronomy, University of Kentucky	3 years-BLM

Table IV-2

LIST OF COMMENTATORS ON DRAFT EA

Identification Number	Commentator	Representing	Received
1.	Thomas E. Marceau	State Historic Preservation Office	April 21, 1982
2.	Arthur Anderson	U.S. Fish and Wildlife Service	April 26, 1982
3.	Craig D. Thompson	Self	May 5, 1982
4.	W. Donald Dexter	Wyoming Game and Fish Department	May 7, 1982
5.	John S. Wilkes III	Arch Mineral Corporation	May 10, 1982
6.	Bruce Hamilton	Sierra Club	May 11, 1982
7.	Alvin Walker	Sweetwater County Wildlife Association	May 12, 1982
8.	Dick Randall	Defenders of Wildlife	May 12, 1982
9.	Tom Wolf	Wyoming Outdoor Council	May 12, 1982
10.	Allen D. Klein	Office of Surface Mining	May 13, 1982
11.	W. Donald Dexter	Wyoming Game and Fish Department	June 4, 1982
12.	Governor Ed Herschler	State of Wyoming	June 9, 1982
13.	Alvin F. Bastron	Wyoming Recreation Commission	June 9, 1982
14.	Robert Dorn	Wyoming Department of Environmental Quality	June 9, 1982
15.	Richard C. Moore	Wyoming Industrial Siting Administration	June 9, 1982

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Commentator No. 1

Comment No. 1. We are confident that Unsuitability Criterion 7 (Cultural Resources) was applied in an appropriate manner; however, based on the limited data on which decisions were made, we would point out that the existence of significant archeological and/or historic sites within the project zones should not be ruled out. Documentation of this potential can be found in the Site-Specific Environmental Reports attached to the EA.

Response. Text has been revised. See Chapter II, *Cultural Resources*, and Chapter III, *Impacts of the Proposed Actions, Cultural Resources, and Impacts of the Alternate Transportation Systems, Cultural Resources*.

Comment No. 2. Because so little of the proposed project zones have been adequately surveyed for cultural resources, we concur with the statement that "a Class III inventory would be required for each coal lease area and transportation route" (E.A.:71). National Register evaluations of all sites discovered, determinations of effect, and, as appropriate, site specific mitigation procedures should be provided.

Response. Text has been revised to include each lease area. See Chapter III, *Mitigating Measures, Cultural Resources*.

Comment No. 3. From the point of view of cultural resource management, consideration should be given to those alternative transportation corridors which would impact or be likely to impact the fewest number of archeological or historic sites.

Response. Alternate transportation systems were considered during the decision-making process. See Decision Record for selected routes.

Commentator No. 2

Comment No. 1. On page 13 appears a rather abbreviated list of proposed species for reclamation of the Beans Spring mine site. There are available several publications which suggest many more possibilities for revegetating arid lands. At a minimum, some forbs and sagebrush should be included if they now occur on the sites.

Response. Seed mixtures for each plant community are recommended in Table III-9, which would further mitigate the company-proposed seeding. Final seed mixtures must be approved by the Wyoming Department of Environmental Quality, Land Quality Division.

Comment No. 2. We would prefer that crested wheatgrass be eliminated from all revegetation plans.

Response. Text has been revised, and crested wheatgrass has been deleted. See Tables III-9 and III-10.

Comment No. 3. ...the preferred rail routes will have a significant effect on raptors of "high federal interest" and golden eagles. We strongly recommend the selection of the more environmentally sound Patrick Draw alternative rail route on the Black Butte Creek Project and the conveyor belt alternative on the Beans Spring Project over the preferred route.

Response. The Patrick Draw rail route and the Gap Creek-Burley Draw-Patrick Draw rail route have been selected. The rail route for the Beans Spring Project is the best transportation alternative when other potential coal development in the vicinity is considered.

Comment No. 4. On page 50, a date of March 15 through June 30 was indicated as the time period that raptor nesting activities could be adversely affected by mine related activities. A more inclusive date would be February 1 through June 30, and we recommend that the EA adopt this time period for raptor nest protection.

Response. The dates of March 15 through June 30 were established to protect the majority of the breeding-nesting birds. In most years, the major nesting activity would begin after March 15. Some activity may begin prior to March 15 in years with an early spring, but the activity period from March 15 to June 30 would protect the majority of nesting raptor species each year.

Comment No. 5. The Table Project area would have a significant impact on raptors--14 nest sites destroyed and 22 more possibly abandoned. We could find no proposal under "Proposed Mitigation," page 63, for the restoration of habitat or mitigation of these impacts. We highly recommend that a mitigation plan be developed for this important raptor population.

Response. Coal unsuitability criteria 11, 13, and 14 were applied this area, and no surface occupancy would be allowed. See page 69 of draft EA.

Commentator No. 3

Comment No. 1. It is unclear at this point whether this environmental analysis is an end to the environmental considerations or whether an environmental impact statement is necessary.

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Response. See Chapter I, Introduction, for a description of the process.

Comment No. 2. As no decision notice of no significant impact was included, I assume that an EIS will be written on each project and the costs of the EIS will be included in the calculations necessary to justify a project's commercial viability.

Response. See response to Comment 3-1. The costs of environmental analyses are not considered a "justification" of a project's commercial viability.

Comment No. 3. On the subject of commercially developable coal reserves, I request that the maps of estimated reserves, the survey details that were the basis for these estimates, the depth to the seam(s), and coal seam thickness be included. These are public resources and a public land management decision requires a full and complete disclosure of reserves before a complete accounting can be made.

Response. The purpose of this EA is to analyze the potential impacts of development and to provide for each project those stipulations and mitigation measures that will be considered for the final showing. It is not the purpose of this document to determine the economic feasibility of development; therefore, the above request has no bearing on this EA. A determination of economically mineable reserves will be made in the final showing submitted by the company to the BLM and MMS. The information requested was provided in the initial showing submitted by each company; these documents were provided to BLM for the purpose of preparing the EA and are not public documents unless the company agrees to release all or portions of the document.

Comment No. 4. The request by Rosebud Coal that coal reserve information remain confidential has no provisional basis in the regulations and does not service the public's best interest.

Response. See response to Comment 3-3.

Comment No. 5. I see no provisions in the regulations for public input and assume that public input is guaranteed through the EA-EIS regulations.

Response. That is a correct assumption. Public input also is provided through the land use planning process. Other opportunities for public review, such as the State mining and reclamation permit process, are available.

Comment No. 6. As I understand the EA, the BLM is locked in to granting the lease(s) if the company can sufficiently back up their claim that there is commercial quantities of coal.

Response. Yes, provided that all necessary provisions are met; see Chapter I, *Introduction*.

Comment No. 7. The fact that there are commercial leases next to railroad lines in less sensitive areas of Sweetwater County and that the lease holders, through extensive market research, have determined their own leases to be unmarketable at the present time does not matter in the PRLA process. The fact that these acreages in question have previously been classified as unsuitable for coal development has no bearing on the PRLA process. Are these correct statements?

Response. The first statement is correct, and the second statement is partially correct. The coal unsuitability criteria are considered in the EA process, and through this process it can be determined that exceptions can be made in cases where the impact can be mitigated. It is correct that some areas within the projects' boundaries were determined to be unsuitable for surface coal mining; however, other areas within the projects' boundaries were determined to be suitable for surface coal mining. Previously designated unsuitable areas for which exceptions can be made, through mitigation of impacts or new information, become suitable under the provisions of the lease stipulations.

Comment No. 8. Does the Green River/Ham's Fork leasing target have to be met in part by the PRLA process?

Response. No; however, it could be met in part by the process.

Comment No. 9. I find it inconceivable that our own Wyoming Game and Fish would concur to seriously impact the most important deer herd in Sweetwater County as well as elk calving grounds, and I would like to request copies of correspondence or transcripts of meetings in which they agreed to support these proposals.

Response. The Wyoming Game and Fish Department was requested to respond to this EA. The EA does not imply that the Game and Fish Department agrees to the proposals; nevertheless, the Department was consulted on these matters.

Comment No. 10. Does the BLM maintain that eight aerial surveys and one ground survey of wildlife, that failed due to inclement weather, are study enough to overturn a previous unsuitability classification?

Response. The Beans Spring project area was in 1980 initially determined to be deer crucial winter range, and therefore unsuitable for surface coal mining operations. That determination was based primarily on consultation with Wyoming Game and Fish Department personnel. During the fall of 1981, five vegetation production/utilization transects were placed in the project area by BLM to generate habitat data. A cooperative deer census study was con-

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ducted during the winter of 1981-82 by biologists from Arch Mineral Corporation, Wyoming Game and Fish Department, and the BLM to gather data on deer in the area. It was concluded on the basis of those more recent and site-specific studies that most of the PRLA area is not crucial winter range and that coal development would be acceptable if mitigated as noted on pages 66-68 of the draft EA.

Comment No. 11. If the companies can demonstrate that they have commercial quantities of coal after writing a comprehensive EIS, fine.

Response. See response to Comment 3-1.

Commentator No. 4

Comment No. 1. In the general EA, Chapter II, Affected Environment, pages 33-36 cover wildlife but omitted fisheries. Chapter III, Environmental Consequences, pages 49-50 cover wildlife but do not mention fisheries. Fisheries are present within the area boundaries for the Beans Spring Project.

Response. Text has been revised; see wildlife sections of Chapter II and of Chapter III, *Impacts of the Proposed Action and Impacts of the Alternate Transportation Systems*.

Comment No. 2. Chapter III, Environmental Consequences, pages 4 and 5 do not adequately cover consequences to surface water and soils.

Response. Although this comment is on the Site-Specific Environmental Report for the Beans Spring Project, impacts to surface water have been mitigated by the company proposal in Chapter I of the EA and thus considered as part of the proposed action. However, to further discuss mining consequences to surface water and soils would be difficult at this stage in the leasing process. The Bureau feels it is more appropriate at this time to identify areas of concern. An in-depth analysis should be included in the mine plan, subject to State review and approval.

Commentator No. 5

Comment No. 1. ...we conducted with your staff on April 30, 1982, a meeting to discuss the Mule Deer Census, Winter 1981-82 Study, accomplished cooperatively by Arch Mineral, BLM, and Wyoming Game and Fish. It is our desire to have this report be made a formal part of the EA.

Response. The Bureau sincerely appreciates the cooperation and funding of the mule deer study during the winter of 1981-82 in the Beans Spring

area by Arch Mineral Corporation; as well as their commitment to continuing the study during the winter of 1982-83, and longer if need be. The summary and conclusions from the study have been included in the wildlife section of Chapter II, *Affected Environment*. The full text of the study, however, is too lengthy to include in this document; copies of the study are available for review in the Salt Wells Resource Area Office.

Comment No. 2. ...at this time it would appear that Arch Mineral's preference for a transportation network would be to use rail to move the coal from the Beans Spring area to the main line of the Union Pacific Railroad.

Response. The Gap Creek-Burley Draw-Patrick Draw rail route alternative has been selected. See Decision Record.

Commentator No. 6

Comment No. 1. We are especially concerned with the proposal to waive almost all of the unsuitability determinations with the vague promise that there will be adequate mitigation. In December 1981 the BLM published its final coal decisions for the Salt Wells and Big Sandy Resource Areas. Now, less than six months later, the BLM appears to be reversing its earlier assurances to the public that these tracts would be deemed unsuitable for coal leasing and mining. The leases include crucial deer winter range, elk calving areas, prairie falcon and golden eagle nest sites, and sage grouse crucial habitat.

Response. There is a difference between the unsuitability review of PRLA areas versus unleased and uncommitted Federal coal lands. Areas determined unsuitable within PRLAs cannot be omitted from the lease whereas they can be deleted from competitive leases. Therefore, one of the primary objectives of this EA is to develop stipulations and mitigation to protect the unsuitable areas. In the case of the Table Project, which contains all of the prairie falcon, golden eagle, and ferruginous hawk nests referred to, the nests and buffer would be protected through a "no surface occupancy" stipulation as noted on page 69 of the draft EA. Since these areas overlap the elk calving area also referred to, the no surface occupancy stipulation will also protect the calving area.

Most of the deer winter range is located in the Beans Spring Project, which was analyzed in a special study conducted jointly by BLM, Ark Land Company, and Wyoming Game and Fish personnel during the winter of 1981-82. As noted in the response to Comment No. 3-10, it has subsequently

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been determined that most of the PRLA area is not crucial winter range and that coal development could be acceptable if mitigated as noted on pages 66-68 of the draft EA.

There are no sage grouse leks found on any of the PRLA areas. After consideration of the exceptions and in consultation with Wyoming Game and Fish personnel, it was determined that certain stipulations and mitigation (see pages 66-70 of the draft EA) would provide adequate protection for sage grouse values.

Comment No. 2. Given the present soft coal market we fail to understand why we should be leasing fragile public lands with known, real conflicts.

Response. See Chapter I, *Introduction*, for explanation of PRLA processing.

Comment No. 3. There was no decision notice and finding of no significant impact (FONSI) accompanying the EA. Have you reached a decision? Given the highly controversial nature of this proposal I urge you to prepare an environmental impact statement and reexamine your proposal to reverse the unsuitability determinations.

Response. The decision accompanies this EA. See responses to Comments 3-3 and 6-2.

Commentator No. 7

Comment No. 1. It seems unlikely that any of these proposed projects are economically feasible, given the host of environmental impacts that must be mitigated and taking into consideration those that cannot be mitigated.

Response. A determination of economic feasibility will be made by MMS following the company's submission of a final showing.

Comment No. 2. During our involvement in the Salt Wells EIS we questioned whether the problems in this area were related to overgrazing. From the few studies we have read it appears that abuse of the habitat through overuse is the largest factor limiting numbers of deer in this area.

Response. The commentator's reference to the Salt Wells EIS is unclear; however, the Bureau has engaged in discussions that there is overgrazing in some riparian zones of this area. Generally speaking, the area's management is favorable to deer habitat.

Comment No. 3. None of the proposed mitigating measures will assure that deer numbers will not decrease. In fact, given the topography of the

PRLA area, it seems likely there would be no viable deer herd in the area once mining begins.

Response. The mitigation offered by BLM is designed to keep reductions in the deer population owing to this action at a minimum. Off-site mitigation would enhance deer habitat in the surrounding areas. The affected deer herd management unit, as defined by the Wyoming Game and Fish Department, covers the area from the Wyoming-Colorado and Utah state line north to Interstate 80 and from Highway 430 west to Flaming Gorge Reservoir. The WGFD's optimum population for this management unit is 10,000 deer; habitat loss from the Beans Spring project is estimated to displace 100 animals, so a viable deer herd should remain. The habitat loss would be mitigated through the measures required on pages 66-68 of the draft EA.

Commentator No. 8

Comment No. 1. Two of the proposed mines, Beans Spring and the Table Project, are located in areas that are critical to the survival of several species of wildlife. There is simply no way to mitigate impacts of mining on the habitat or wildlife in these areas.

Response. The Bureau disagrees. For response to Beans Spring project mitigation, see response to Comment No. 7-3. For response to the Table Project mitigation, see response to Comment No. 6-1.

Comment No. 2. If we believe the 'purpose' of this proposal is a statement of fact, then we must assume there is a crying need for much more coal leasing, now and in the immediate future. From studies and projections I have read, it appears we have already sold enough federal coal to supply the domestic market, and overseas market, for decades to come.

Response. Text has been revised. See *Purpose and Need* section.

Comment No. 3. Since the current demand for western coal is rather soft (cutbacks in production; underground mines closed) careful consideration should be given to economic realities that could result in a mine being opened, then forced to close, with resultant impacts on the environment serving no real purpose.

Response. See response to Comment No. 7-1; certainly the companies involved are aware of the market conditions and would not go to the expense of developing a mine unless there was a high probability of positive returns on their investments.

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Comment No. 4. Impacts on the concentration of raptors that nest in this area (Table Project) cannot be mitigated.

Response. See response to Comment No. 2-5.

Comment No. 5. ...cumulative impacts on wildlife and other multiple-use values from the myriad of mineral related activities occurring in southwest Wyoming make it imperative that each new project be evaluated as a part of the whole and not as a separate entity.

Response. See Cumulative Impacts Analyses in Chapter III of EA.

Comment No. 6. Based on my knowledge of this area, at one time there were probably too many deer, along with too many cattle and sheep. The habitat took a beating. I believe BLM studies are finding that overgrazing is occurring yet today in this area.

Response. See response to Comment No. 7-2.

Comment No. 7. No doubt, through careful management, the Beans Spring habitat can be returned to a condition that will support larger numbers of deer and other wildlife, along with more forage for livestock. However, this cannot be accomplished at the same time surface mining of coal is occurring in the area. In fact, mining will have just the opposite effect, despite any mitigation that might be imposed.

Response. See response to Comment No. 7-3; furthermore, mitigation following end of mine life would return the area to wildlife habitat.

Comment No. 8. Given the cost of mitigating environmental impacts, revegetating a very stubborn area, and taking into consideration impacts that cannot be mitigated, it seems unlikely this project could be economically feasible.

Response. See response to Comment No. 7-1.

Commentator No. 9

Comment No. 1. We do not feel that these areas in question in Sweetwater County contain "commercial" quantities of coal. Surely, "commercial" must be considered relative to the current coal market and its longterm prospects. If this were done, we feel that these PRLA's would not be marketable. Forcing them onto an already weak market makes no economic sense.

Response. See response to Comment No. 8-3.

Comment No. 2. As we understand the PRLA process, you have three options open to you in

denying the development of these leases. We urge you to consider all three:

Response. The options are considered as an integral part of the PRLA process; see Chapter I, *Introduction*.

Commentator No. 10

Comment No. 1. Would zero discharge infringe on anyone's claim to water rights downstream on Salt Wells Creek? Also, what is the effect on water supply for alluvial valley floors downstream?

Response. Zero discharge would not infringe on any claims to water rights downstream on Salt Wells Creek. No alluvial valley floors were identified. It should be understood that the Office of Surface Mining would make a final determination on alluvial valley floors after a review of the mine and reclamation plans and during the permit process.

Comment No. 2. A listing of the expected impacts to the flood plain of Salt Wells Creek within the lease area including any mitigation would be helpful.

Response. The Bureau determined through impact analysis that the company-proposed mitigation of anticipated effects on the flood plain was sufficient to mitigate those impacts. Thus the proposed action would have no impact on the flood plain and no additional mitigation would be necessary.

Comment No. 3. Is a water quality monitoring program planned for Salt Wells Creek? If not, what is the reason? Also Gap Creek drains a large part of the lease area. Would water quality be monitored on it? Even if surface waters affected by mining are not discharged into these creeks, there is likely to be some effect on quantity and quality of ground water discharged to them in and near the lease area.

Response. See company-proposed mitigation for Beans Spring, pages 10-11 of draft EA.

Comment No. 4. page 11—Wyoming rules and regulations require that all suitable topsoil be salvaged. Suggest that first sentence be changed to reflect Wyoming requirements.

Response. This is company-proposed mitigation; mitigation as is suggested is found on pages 63-64 of draft EA.

Comment No. 5. page 15—Last sentence in first paragraph is unclear. We suggest rewriting for clarification.

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Response. The word "height" has been substituted for "distance".

Comment No. 6. page 16—Reclamation section. Request inclusion of word "all" before suitable topsoil for consistency with Wyoming requirements.

Response. Text has been revised; see Chapter I, *Proposed Actions, Company-Proposed Mitigation*.

Comment No. 7. page 32—Third paragraph soils section: Identified portions of each project area as having unsuitable topsoil material.

For what reasons were the areas unsuitable?

What criteria were used to determine unsuitability?

Were criteria consistent with Wyoming requirements?

Response. The mapping intensity level for each project area differed; therefore, it was difficult to apply general criteria for unsuitability as topsoil material. Given this constraint, the Bureau used an approach which evaluated soil texture, depth, and chemistry. Guideline No. 3, Land Quality Division of the Wyoming Department of Environmental Quality, was the basis for the evaluation.

Comment No. 8. page 66—Second paragraph (1) Is habitat recovery and replacement plan for wildlife habitat, the same as submitted in mine plan for SMCRA compliance? If so, then why require applicant to submit separate copies? (2) Suggest deletion of "indicator species"; (3) Suggest deleting last sentence; same sentence as in paragraph 3.

Response. The BLM, with the concurrence of the State of Wyoming, seeks to maintain wildlife habitat through the mine life if necessary. SMCRA seeks to return the land to prior use; BLM's intent, as indicated, is to mitigate impacts to wildlife populations. Text has been revised in response to items 2 and 3.

Comment No. 9. page 66—Fourth paragraph (1) suggest deleting paragraph; says same as second paragraph; (2) Define carrying capacity as it refers to revegetation success and standards. What numbers would be used for carrying capacity comparisons? What is the result of carrying capacity determination? (3) It is understood that revegetation may not be "completely feasible," however, revegetation standards require revegetation success determination prior to disturbance.

Response. Paragraph has been deleted. The Bureau has considered additional methods of mitigating disturbance to wildlife habitat. Consultation with the Wyoming Game and Fish Department will assist in determining habitat requirements.

Comment No. 10. page 67—Is proposed seed mixtures for 3 proposed mines consistent with Wyoming's preferred species?

Response. There is not a list of Wyoming's preferred species for seed mixtures. To clear up some obvious confusion, the titles of the tables have been revised. See Tables III-9, III-10, and III-11.

Comment No. 11. page 67—Habitat recovery and replacement plan (1)(b) Not clear as to what "quality carrying capacity of habitat" is; suggest adding an explanation.

Response. Text has been revised; see Chapter III, *Mitigation Measures, Wildlife, Beans Spring Project*.

Comment No. 12. page 70—Table Project. The same comments as per Bean Springs pertain to the Table Project. Suggest definition of "carrying capacity" requirements.

Response. See responses to Comments No. 7, 8, 9, and 10.

Comment No. 13. page 16—The last paragraph is discussing forb and shrub species, then lists grass species as suggested forb and shrub species.

Response. *Agropyron trachycaulum* has been removed from the list.

Comment No. 14. page 32—Affected Environment—vegetation description should be expanded slightly to include the major dominate species, production and cover and past impacts on the communities. Condition of the present communities should be discussed.

Response. Text has been revised; see respective project area in Chapter II, *Affected Environment, Vegetation*. The species were referenced in the SSERs, and the major species are listed in Tables III-9, III-10, and III-11.

Comment No. 15. page 49—Environmental Consequences—vegetation—the present vegetation will be completely destroyed. What are the environmental consequences? Are existing methods of revegetating the area available and are these methods successfully being used on adjacent mines? Can the cover that is necessary to protect the site be reestablished? The report indicates it will take 50 years after initial reclamation to establish a stable community. Is this a goal of reclamation? If use of the revegetated areas is permitted, will the community ever become "stable"?

Response. The impacts would be as indicated. Text has been amended; however, it is difficult to determine due to lack of specific information if cover can be successfully established on this area. Since plant communities are dynamic, the term

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“stable” cannot be taken literally. Nevertheless the goal of reclamation is to return these areas to productive rangeland and the native communities to a viable state comparable to premining communities.

Comment No. 16. Page 51 states that 150 workers will be required to construct the proposed railroad facilities. There is no discussion of housing requirements for these workers in the text or in Table III-4.

Response. Text has been amended. See Chapter III, *Impacts of the Proposed Action, Socioeconomic Impacts*.

Comment No. 17. page 55—“Infrastructure and Social Services” does not quantify the public service and facility needs as a result of the projects. There is no discussion of whether or not Sweetwater County and impacted communities will have adequate revenues to accommodate the increased population attributable to the mines. The absence of this information makes it impossible to determine the significance of impacts related to the mines.

Response. The impacts from these projects on these sectors are not expected to have a major effect on the county or communities.

Comment No. 18. There is no discussion of where the workforce will come from, i.e., in-migration vs. existing residents. A discussion of current unemployment rates and trends would help to determine the proportion of newcomers to the area.

Response. See Chapter II, *Employment and Income*, pages 38-39 of draft EA, for unemployment rates and trends. With the low employment rates shown, it is expected that the workforce would come primarily from in-migration.

Comment No. 19. All Colorado PR coal leases within the Green River-Hams Fork Region contain a standard stipulation requiring the lessee to submit to BLM concurrently with the filing of its mine plan, a socioeconomic and transportation impact mitigation study. The attached standard stipulation should be included in this action to insure consistency within the Region.

Response. Stipulation has been added to each project. See Chapter III, *Mitigation Measures*, under each proposed action.

Comment No. 20. Finally, there is no discussion of socioeconomic impacts under “Unavoidable Adverse Impacts” on page 72.

Response. With the addition of the stipulation referred to in Comment No. 19 above, there would be no unavoidable adverse impacts.

Comment No. 21. Chapter II—need a discussion of baseline climate and air quality in the area of the proposed actions.

Response. Text has been amended. See Chapter II, *Climate and Air Quality*.

Comment No. 22. Chapter III—need a discussion of the impact of the proposed actions on air quality.

Response. Text has been amended. See Chapter III, *Impacts of the Proposed Action, Air Quality*.

Comment No. 23. We recommend that the above information be requested of the applicant as a lease requirement.

Response. The above information would be addressed per applicable State regulations. See Chapter III, *Mitigation Measures*, general discussion. Commentator No. 11

Comment No. 1. page 15—Wording in the Water Resource section is much too vague. If it is determined that outside water sources are becoming contaminated, more stringent steps should be implemented to offset undesirable conditions.

Response. The section in question is company-proposed mitigation. The mitigation has been supplemented with Bureau-proposed measures; see page 65 of draft EA.

Comment No. 2. page 16—The Reclamation section is relatively weak. Granted it is important to get vegetation reestablished on these sites to reduce erosion but desirable species should be planted. Sagebrush is not mentioned as a potential species in the section. The only mention of shrubs is bitterbrush and it is listed as a potential species if long-term goals dictate a need for it. Reclamation as proposed will be difficult as it is extremely difficult to get shrubs established once grasses and forbs have been established. This area is used by mule deer in the winter months and by antelope yearlong. Shrubs must be included in the reclamation of this area if it is to be of any use to wildlife. Native species should be used in all reclamation efforts.

Response. The Bureau has supplemented the company-proposed mitigation with reclamation recommendations; see pages 65, 66, and 68 of draft EA. However, page 16 does list sagebrush after bitterbrush. See also responses to comments 10-14 and 10-15.

Comment No. 3. page 21—The Patrick Draw Haul Route is preferred over the building of a new rail spur and loading facility. If the rail spur is selected, the current loading facilities at the Black Butte Mine should be utilized.

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Response. When the Bureau considered the potential for further development in the area, the Gap Creek-Burley Draw-Patrick Draw rail spur alternative was selected. See Decision Record.

Comment No. 4. page 27—If reclamation on site is going to be used as mitigation for potential loss of grouse habitat then it should include sagebrush as an important species for revegetation. Sagebrush is not mentioned. What impacts are expected to occur for antelope and mule deer? These species are important in habitats of the area yet they are not mentioned.

Response. Consultation with Game and Fish Department was conducted prior to determining the stipulations and mitigation requirements; see Table III-10 for recommended plants for seeding mixtures and page 70 of draft EA for discussion. Impacts to antelope and mule deer were of concern, but the primary concern was the impact to sage grouse as stated on page 70.

Comment No. 5. Water developments will not mitigate habitat loss to grouse since Black Butte Creek runs down the center of the proposed lease. If plans exist to dry up the creek, then water developments are needed. The creek should be maintained by establishing a $\frac{1}{4}$ -mile buffer on either side of it. This will protect the riparian system and also ensure water for wildlife.

Response. Water developments are included only as examples of the types of mitigation that could be employed. The one-fourth mile buffer zone is not consistent with Wyoming Department of Environmental Quality rules and regulations for coal mining (DEQ, Land Quality Division, 1981-page 80, "Stream Buffer Zone").

Comment No. 6. page 36—The only species of wildlife mentioned are raptors, yet all of the proposed mitigation is geared towards sage grouse. The mitigation standards are not complete as no mention is made of big game.

Response. Text has been revised. See Chapter II, *Wildlife, Black Butte Creek Project*, and Chapter III, *Impacts of the Proposed Actions, Wildlife, Black Butte Creek Project*. Mitigation for big game in consultation with Game and Fish Department is provided for Black Butte Creek Project; see page 70 of draft EA.

Comment No. 7. page 36—It is not clear how the loss of livestock AUMs will be mitigated. If use by livestock is not reduced, wildlife AUMs will be lessened.

Response. See Chapter III, *Proposed Mitigation, Livestock*, page 71 of the draft EA.

Comment No. 8. page 47—Due to the aquifer recharge system that is in this area, water is an im-

portant issue. More stringent controls are needed to offset potential negative impacts.

Response. See Chapter III, *Proposed Mitigation, Black Butte Creek Project*, page 65 of draft EA.

Comment No. 9. page 49—Adequate reclamation is the issue on this site. Reclamation as proposed is inadequate for wildlife.

Response. See Chapter III, *Proposed Mitigation, Vegetation*, pages 65, 66, and 68, and *Wildlife*, page 70.

Comment No. 10. page 65—Proposed Mitigation—Black Butte Creek should not be disturbed. We strongly recommend against the rerouting of the creek.

Response. No disturbance to the creek is anticipated; however, the Bureau is providing a contingency should disturbance occur. Recontouring (not rerouting) would be preferable to the consequent impacts should this contingency not be followed.

Comment No. 11. page 70—Again, sage grouse is the main species that reclamation is being geared towards. Habitat needs for big game and other species should be included; this area is important antelope winter range.

Response. Refer to page 70, last paragraph, lines 11 and 12: It is stated that other wildlife species would be considered in the wildlife habitat recovery plan.

Comment No. 12. None of the impacted area is considered critical wildlife habitat. The Cooper Ridge mule deer winter range complex lies just to the south and west of this site. No activity should occur on this winter range.

Response. No impact to the Cooper Ridge deer range is anticipated from the Black Butte Creek Project. Summer range would be impacted by the project; see Chapter III, *Impacts of the Proposed Action, Wildlife*, as revised in this volume.

Comment No. 13. The potential impact of this mine on the migration of deer and antelope from the region to the east to the winter ranges on the western side of the mine should be considered.

Response. See response to Comment No. 11-6.

Comment No. 14. It was also stated in the EA that this alternative will ensure logical progression of mining towards the Beans Spring area. This will mean the potential loss of important winter range for both deer and antelope. We prefer no development south and west of this site.

Response. See response to Comment No. 1-3.

Comment No. 15. If the reclamation standards are upgraded to ensure that wildlife habitat can be

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reclaimed, then overall impacts from this mine should be minimal.

Response. See response to Comment No. 11-6.

Comment No. 16. page 14—There is no mention of reestablishing the native habitat to its original characteristics. The proposed disturbed sites will be "revegetated" (via modern farming techniques) with a seed bed mixture of unknown number or type of plant species. The plant species this company proposes to revegetate the disturbed areas on public land with should be included.

Response. Company-proposed mitigation has been augmented by the mitigating measures in Chapter III, *Mitigating Measures, Vegetation and Wildlife*.

Comment No. 17. The BLM states on page 33 of this EA "The mining on 2,233 acres would affect three different vegetation types: Sagebrush (1,390 acres); Nuttall's saltbush (686 acres); and Juniper (157 acres)." Does "affect" mean total or partial removal?

Response. See Chapter III, *Impacts of the Proposed Action, Vegetation*, page 49 of the draft EA.

Comment No. 18. page 50—"Deer. Vegetation loss to all mining operations would reduce range carrying capacity for deer by about 504 deer AUMs or 42 animals". Approximately 1,200 acres of "important" winter range would be lost." This statement appears to address only those deer which inhabit this area on a yearlong basis. If the impacts occur on winter range, which receives five months of use (not twelve), then this habitat for 101 deer (not 42) would be lost.

Response. Text has been revised; see Chapter III, *Impacts of the Proposed Action, Wildlife, Table Project*.

Comment No. 19. page 50—"Elk. Mining would remove important browse and cover from about 1,200 acres of elk winter range. Human activity disturbance to elk varies from 0.2 to 0.9 of a mile depending on slope and terrain. Therefore, an additional 3,000 acres of elk winter range would be lost around the PRLA. Disturbance would also displace elk calving activities from the Cedar Canyon area."

"Raptors. Strip mining and associated activities would destroy 14 nesting sites and would have detrimental effects (possibly abandonment) on 22 additional nests."

BLM also states on page 24—"Portions of the Table PRLA were found to be unsuitable for surface mining under criteria 2, 11, 13, 14, and 15 and unacceptable due to multiple use conflicts (BLM 1981b)."

The BLM and Wyoming Game and Fish Department are in complete agreement with this statement. However, "exceptions" have been applied to criterion 15 which removes it from the unsuitability list. The "exceptions" are explained by the following:

"The area can be leased for surface mining provided that the surface management agency and the appropriate state agencies are satisfied with mitigating measures developed to protect deer habitat and insure long term survival." (Memo from Sally Haverly, Acting Area Manager, BLM to Don Sweep, District Manager BLM 9/11/81).

The Wyoming Game and Fish Department is not satisfied with the proposed mitigating measures which apply to criterion 15. We feel the proposed mitigation measures for reestablishing the native habitat, in lieu of the expected losses determined by the BLM, are inadequate. Mitigation measures for wildlife on page 70 relate only to the deer herd. The BLM specifically stated that a total of 4,200 acres of elk winter range would be lost. Mitigation measures which ensure the long-term survival of elk are absent.

Given the above statements, we agree with the BLM personnel that the Table Project Area is unsuitable and unacceptable for surface mining.

Response. The mitigation has been amended; see Chapter III, *Mitigation Measures, Wildlife, Table Project*.

Comment No. 20. Chapter I Description of the alternatives including the proposed action, pp. 1-27. Company Proposed Mitigation, p. 6-Beans Spring Mine, pp. 10-13-Protection of Wildlife and Other Natural Scenic Resources, pp. 11-12. Very little mitigation for wildlife is mentioned in this section.

Response. See Bureau-proposed mitigation; Chapter III, pages 66 and 69.

Comment No. 21. Reclamation, pp. 12-13. There is no reclamation of the vegetation of the mine site specifically for wildlife. The reclamation proposed is just a revegetation of the areas.

Response. See Bureau-proposed mitigation; Chapter III, pages 65, 66, and 67.

Comment No. 22. Transportation Routes for Beans Spring Mine, pp. 6-7, 17, 19-21. For any transportation route, whether railroad or haul road, the right-of-way required for construction and maintenance would be lost wildlife habitat. This loss could not be adequately mitigated or rehabilitated for the wildlife species present in the area.

Response. Proposed Mitigation for Beans Spring Project (pages 66 and 69) would be applied, as well as standard stipulations for rights-of-way.

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Comment No. 23. Chapter III *Environmental Consequences*, pp. 43-73—Proposed Mitigation, pp. 63-71—Beans Spring Project, pp. 64-69—Vegetation, pp. 65-66. It is questionable if the vegetation can be rehabilitated to support the desired wildlife population called for in the Department's management plan.

Response. See proposed wildlife mitigation, page 66, second paragraph, draft EA.

Comment No. 24. Wildlife, pp. 66-69. The potential for mitigation of the lost wildlife habitat from the Beans Spring Project is questionable. No consideration is given to the mitigation for the loss of the area to the public for hunting and recreation.

Response. The Bureau disagrees. The proposed mitigation includes provisions for off-site habitat replacement that, with the Game and Fish Department's concurrence, should provide replacement habitat, hunting, and recreation opportunities.

Commentator No. 12

Comment No. 1. ...the environmental assessments fail to recognize or mention that other coal mining activity is taking place in the general proximity of the PRLA's and that there will be cumulative effects.

Response. Cumulative impacts and other coal mining activity in the general area are discussed in the draft EA, Chapter III, *Impacts of the No Action Alternative, and Impacts of the Proposed Actions*. However, further details have been added to that discussion in this volume.

Comment No. 2. On a directly related note, the environmental assessments should mention that Land Use Planning amendments have been developed for the Salt Wells and Big Sandy Resource Areas and the decisions made as a result of these land use plans may affect the economic development potential of these PRLA's, especially the Beans Spring PRLA.

Response. Land use planning related to coal are discussed in Chapter IV of the draft EA. However, further details have been added to Chapter I of this volume.

Commentator No. 13.

Comment No. 1. The WRC would like to request that these undesirable effects (to recreation) be held to a minimum and that reclamation be pursued as soon as possible after mining efforts have been completed. were also identified, analyzed, and addressed by the BLM in detail. It is the BLM's contention that these values are adequately protected through the recommended stipulations and mitigation measures.

Response. Company-proposed mitigation (page 14 of draft EA) would keep effects to recreation at a minimum and assures that reclamation would be initiated as soon as possible after mining is completed.

Comment No. 2. The socioeconomic data for Sweetwater County shows a large percentage of population growth over the last several years and projections show these increases will continue. The provision of recreation activities for employees will help achieve improved worker morale which in turn will keep down employee turn-over rates. The WRC feels recreation opportunities in Sweetwater County are rapidly becoming inadequate and it is in the best interest of the coal companies to provide better living conditions with increased recreation opportunities for its workers.

Response. The Bureau has added a stipulation to each lease which would require the company to identify employee impacts to parks and recreation systems (see response to Comment No. 10-18).

Commentator No. 14

Comment No. 1. Attached are potential conflicts with the above projects. Some are addressed in the EA but many are not. We will not have time to provide detailed, specific comments because of the large number of potential conflicts.

Response. Most of the lands identified by the Wyoming DEQ Land Quality Division as potential conflict areas are not with the PRLA project areas, and many of the identified parcels are private or State lands which are not subject to BLM administration. The values which were identified by the Land Quality Division were also identified, analyzed, and addressed by the BLM in detail. It is the BLM's contention that these values are adequately protected through the recommended stipulations and mitigation measures.

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Commentator No. 15

Comment No. 1. The socioeconomic impact assessment is grossly inadequate due to the use of linearly extrapolated employment numbers. For projects as small as described in this EA, linear extrapolation of employment from a one million ton per year base is extremely questionable due to the economy of scale which is included in the base. Linear extrapolation of railroad spur construction employment is also subject to question. This is particularly evident for the Table Project, where the two-mile-long spur is estimated to require only 10 workers for 2 months.

Response. An analysis of the Mineral Development Monitoring System (Wyoming Department of Economic Planning and Development 1981) indicates that direct employment in surface mines of comparable size is consistent with the Bureau's estimates in this EA. The size and duration of the rail-

road construction workforce is dependent upon the individual project's terrain and many other variables and would require a detailed on-site analysis (pers. comm., Richard Castleberry 1981). Since no viable alternative method of estimating workforce requirements is offered, the Bureau finds the original estimates to be adequate for this analysis.

Comment No. 2. The proposed mitigation of socioeconomic impact is totally inadequate. Because these projects are small, it is unlikely that they will require siting permits. Therefore, BLM should consult with personnel from O.S.M. to determine appropriate mitigation consistent with the mitigation required by O.S.M. for similar projects.

Response. See response to Comment No. 10-18.

APPENDIX A

LEGAL DESCRIPTIONS OF AREAS

The legal descriptions of lands covered under each PRLA by proposed mining operation are as follows:

BEANS SPRING PROJECT

Prospecting Permit No. and Area	Legal Description
W-19187 2,240.00 acres	T. 14 N., R. 103 W. Sections 14, 23, and 27, All Section 26, N 1/2
W-19188 2,560.00 acres	T. 14 N., R. 103 W., Sections 21, 28, 32, and 33, All
W-19189 2,029.45 acres	T. 14 N., R. 103 W., Sections 19, 20, 29, and 32, All
W-19190 1,372.53	T. 14 N., R. 104 W., Sections 23 and 24, All Section 25, Lots 1, 2, 3, 4, 7, and 8 Section 26, Lots 4 and 5
	T. 14 N., R. 103 W., Section 30, All

BLACK BUTTE CREEK MINE

Comment No. 15

Comment No. 1

Prospecting Permit No. and Area

W-16431

1,920.00 acres

TABLE PROJECT MINE

Prospecting Permit No. and Area

W-0308923

2,233.00 acres

Legal Description

T. 17 N., R. 101 W.

Sections 14, 22, and 28, All

Legal Description

T. 22 N., R. 103 W.

Section 4, S 1/2

Section 6, Lots 6 and 7,

E 1/2, SW 1/4, SE 1/4

Section 8, N 1/2

Section 10, N 1/2

T. 22 N., R. 104 W.

Section 12, All

Section 14, E 1/2

COMMENT LETTERS
COMMENT LETTERS

3

STATE HISTORIC PRESERVATION DIVISION
1000 N. 1st Street
Tulsa, Oklahoma 74102

TO: [Name]
FROM: [Name]
SUBJECT: [Subject]

Dear [Name]:

I am writing to you regarding the [Subject] project.

The project is currently in the [Stage] phase.

We are seeking your input on the [Subject] matter.

Please provide your comments by [Date].

APPENDIX B
COMMENT LETTERS

STATE HISTORIC PRESERVATION DIVISION
1000 N. 1st Street
Tulsa, Oklahoma 74102

TO: [Name]
FROM: [Name]
SUBJECT: [Subject]

Dear [Name]:

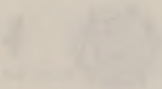
I am writing to you regarding the [Subject] project.

The project is currently in the [Stage] phase.

We are seeking your input on the [Subject] matter.

Please provide your comments by [Date].

Thank you for your time and input.



State Historic Preservation Division

[Text]

[Text]

[Text]

[Text]

[Text]

[Text]

[Text]

TO: [Name]
FROM: [Name]
SUBJECT: [Subject]

Dear [Name]:

I am writing to you regarding the [Subject] project.

The project is currently in the [Stage] phase.

We are seeking your input on the [Subject] matter.

Please provide your comments by [Date].

Thank you for your time and input.

[Text]

[Text]



COMMENT LETTERS

BLACK BUTTE CREEK MINE

1



WYOMING RECREATION COMMISSION
STATE HISTORIC PRESERVATION OFFICE
REVIEW AND COMPLIANCE

RECEIVED
BLM ROCK SPRINGS
DISTRICT
APR 21 1982

Interdisciplinary Staff Comments

ADM OPER
ADM SP
ADM SO

Archeology • History • Historical Architecture • Recreation Planning

TO: Mark Junge, Chief
FROM: Thomas E. Marceau, Review & Compliance Section Head
DATE: April 16, 1982
RE: Environmental Assessment of Coal Preference Right Lease Applications for Bean Spring, Table and Black Butte Creek Projects (WY-049-EA82-37), Sweetwater County, Wyoming--BLM Rock Springs

The Environmental Assessment and supporting documentation have been reviewed. The following general comments are offered:

1. We are confident that Unsuitability Criterion 7 (Cultural Resources) was applied in an appropriate manner; however, based on the limited data on which decision were made, we would point out that the existence of significant archaeological and/or historic sites within the project zones should not be ruled out. Documentation of this potential can be found in the Site-Specific Environmental Reports attached to the E.A.

2. Because so little of the proposed project zones have been adequately surveyed for cultural resources, we concur with the statement that "a Class III inventory would be required for each coal lease area and transportation route" (E.A.:71). National Register evaluations of all sites discovered, determinations of effect, and, as appropriate, site specific mitigation procedures should be provided.

3. From the point of view of cultural resource management, consideration should be given to those alternative transportation corridors which would impact or be likely to impact the fewest number of archeological or historic sites.

4. We concur with the statement that "Cedar Canyon contains several significant cultural resource sites. . . (and) is unacceptable for surface mining" (Table Project PRLA, Ch. II: 12).

cc: Dean Stillwell
Coal EA Team Leader
BLM, P.O. Box 1869
Rock Springs, Wyoming 82901

2



UNITED STATES
DEPARTMENT OF THE INTERIOR
FISH AND WILDLIFE SERVICE
2120 Capitol Avenue, Room 7010
Cheyenne, Wyoming 82001

RECEIVED
BLM ROCK SPRINGS
DISTRICT
APR 26 1982

IN REPLY REFER TO:

April 23, 1982

Memorandum

To: District Manager, Bureau of Land Management, P.O. Box 1869, Rock Springs, Wyoming 82901
Attn: Dean Stillwell
From: Field Supervisor, Ecological Services
Subject: Review of Environmental Assessment, Beans Springs, Table, and Black Butte Creek Projects

Thank you for the opportunity to comment on the subject EA. In general, we find the EA well done and most alternatives and impacts adequately addressed and analyzed. Our comments only address non-endangered fish and wildlife resources. Endangered species formal contact should still be with the Billings Office of the Area Manager; informal discussion or contacts may be made with the Area Endangered Species Team Leader, Wayne Brewster, also at that office. We have several specific comments, as follow.

On page 13 appears a rather abbreviated list of proposed species for reclamation of the Bean Springs mine site. There are available several publications which suggest many more possibilities for revegetating arid lands. At a minimum, some forbs and sagebrush should be included if they now occur on the sites. We recommend that the proposed plant seed mixture listed in Table III-9 under the mitigation measures for the subject mine be adopted. We would, however, prefer that crested wheatgrass be eliminated from all revegetation plans. It is an aggressive, long lived plant of little value to wildlife and there are other species suitable for ground cover.

Page 23 and 27: Apparently there was no need for application of Unsuitability Criteria 11, 12, 13, or 14 on the Beans Spring Project or Black Butte Creek Project areas. However, the preferred rail routes will have a significant effect on raptors of "high federal interest" and golden eagles. We strongly recommend the selection of the more environmentally sound Patrick Draw alternative rail route on the Black Butte Creek Project and the conveyor belt alternative on the Beans Springs Project over the preferred route.

On page 50, a date of March 15 through June 30 was indicated as the time period that raptor nesting activities could be adversely affected by mine relative activities. A more inclusive date would be February 1 through June 30, and we recommend that the EA adopt this time period for raptor nest protection.

The Table Project area would have a significant impact on raptors--14 nest sites destroyed and 22 more possibly abandoned. We could find no proposal under "Proposed Mitigation," page 63, for the restoration of habitat or mitigation of these impacts. We highly recommend that a mitigation plan be developed for this important raptor population. Regarding this, personnel from this office are available at any time to assist your staff in the development of the plan.

Again, we appreciate the opportunity to comment. If we can be of further assistance, please call.

Arthur Anderson

Area Manager, Billings, Montana (ES)(SE)
Wyoming Game and Fish Department, Cheyenne, Wyoming
Wyoming Game and Fish Department, Lander, Wyoming

COMMENT LETTERS

3

1241 Palisades
Rock Springs, WY 82901
April 4, 1982

Mr. Dean Stilwell
BLM-PRLA Team Leader
Box 1869
Rock Springs, WY 82901

Dear Mr. Stilwell:

I have read and reviewed the BLM regulations surrounding the Preference Right Lease Application (PRLA) process and the environmental assessment (EA) of PRLAs in Sweetwater County, WY-049-EA82-37.

I have a number of questions at the outset concerning the regulations. It is unclear at this point whether this environmental analysis is an end to the environmental considerations or whether an environmental impact statement is necessary. Surely a proposal involving 17,455 acres of land largely classified previously as unsuitable for coal development by your office in November 1981, demand a comprehensive EIS.

As no decision notice of no significant impact was included, I assume that an EIS will be written on each project and the costs of the EIS will be included in the calculations necessary to justify a projects commercial viability.

On the subject of commercially developable coal reserves, I request that the maps of estimated reserves, the survey details that were the basis for these estimates, the depth to the seam(s), and coal seam thickness be included. These are public resources and a public land management decision requires a full and complete disclosure of reserves before a complete accounting can be made. The request by Rosebud Coal that coal reserve information remain confidential has no provisional basis in the regulations and does not service the public's best interest.

I see no provisions in the regulations for public input and assume that public input is guaranteed through the EA-EIS regulations.

As I understand the EA, the BLM is locked in to granting the lease(s) if the company can sufficiently back up their claim that there is commercial quantities of coal.

The fact that there are commercial leases next to railroad lines in less sensitive areas of Sweetwater County and that the lease holders, through extensive market research, have determined their own leases to be

Mr. Stilwell
Page 2
April 4, 1982

unmarketable at the present time does not matter in the PRLA process. The fact that these acreages in question have previously been classified as unsuitable for coal development has no bearing on the PRLA process. Are these correct statements?

Does the Green River/Ham's Fork leasing target have to be met in part by the PRLA process?

These proposals are beset with environmental quagmires not only in terms of soils and reclamation, but also contain serious wildlife compromises. I for one, am unwilling to pay the price you ask all residents of Sweetwater County to bear. The EA documents well, although not thoroughly, the wildlife impacts that will be incurred if these areas are mined. I find it inconceivable that our own Wyoming Game and Fish would concur to seriously impact the most important deer herd in Sweetwater County as well as elk calving grounds, and I would like to request copies of correspondence or transcripts of meetings in which they agreed to support these proposals.

Does the BLM maintain that eight aerial surveys and one ground survey of wildlife, that failed due to inclement weather, are study enough to overturn a previous unsuitability classification?

The county does not need this coal now; it will probably not need this coal in the twenty years that is granted for development. Three hundred and twenty million tons were leased out of the Powder River Basin last week. Let's use the coal that is close to railheads, easy to develop, and has the least impact on our wildlife and our environment.

If the companies can demonstrate that they have commercial quantities of coal after writing a comprehensive EIS, fine. Give them the same amount of coal by the railroad and in less sensitive areas.

These proposals will spell the end to quality hunting in Sweetwater County due to their wide distribution and placement in critical winter habitat. This will be the legacy that the BLM will leave behind if you allow these mines to be developed.

Sincerely,

Craig D. Thompson
Craig D. Thompson

4



THE STATE OF WYOMING

ED HERSCHLER
GOVERNOR

Game and Fish Department

CHEYENNE, WYOMING 82002

EARL M. THOMAS
DIRECTOR

May 4, 1982

EIS 971/L1 BLM EA For RECEIVED
PRL Applications BLM ROCK SPRINGS
Beans Spring, Table and Butte Creek Projects.

Mr. Ron Herdt
Bureau of Land Management
District Office
P.O. Box 1869
Highway 187 N
Rock Springs, Wyoming 82901

Dear Mr. Herdt:

Our Fish Division personnel have reviewed this Environmental Assessment and found it does not mention fisheries resources that exist in the lease area.

In the general EA, Chapter II, Affected Environment, pages 33-36 cover wildlife but omitted fisheries. Chapter III, Environmental Consequences, pages 49-50 cover wildlife but do not mention fisheries. Fisheries are present within the area boundaries for the Beans Spring Project.

The site-specific environment report for Beans Spring likewise omitted mention of fisheries. Chapter II, Affected Environment, page 10a, states that "No fisheries habitat occurs within the PRLA's." Although we haven't checked the specific BLM survey milepost numbers with the R, T, S in the EA, fish do occur in Salt Wells Creek, Gap Creek and Beans Spring Creek in the Rock Springs KCRA. These nongame fisheries could be impacted by the Beans Spring project. A report titled Fisheries Distribution and Composition Inventory Salt Wells Resource Area, Rock Springs District, Phase I - Literature Review, submitted to BLM in 1980 by Bio/West, Inc. includes a summary of fisheries data for the area. Information was also submitted to BLM by the Game and Fish Department in a 1977 report. An April 1982 report on the hydrology of Salt Wells Creek by USGS mentions fish species present. Although the presence of longnose dace and mountain suckers does not preclude approval of the lease applications, the information should be included in the EA.

Mr. Ron Herdt
May 4, 1982
Page 2, EIS 971/L1

Chapter III Environmental Consequences, pages 4 and 5 do not adequately cover consequences to surface water and soils. The mitigation statement for surface water is to general to be useful. The "standard" road and or railroad engineering practices references for adequate protection were not defined. We have found that standard engineering practices provide variable protection ranging from extremely poor to excellent.

Additional comments will be furnished upon review of these projects by our Game Division personnel. Please contact us if we may be of further help.

Sincerely,

W. Donald Dexter

W. DONALD DEXTER,
ASSISTANT DIRECTOR, OPERATIONS
WYOMING GAME AND FISH DEPARTMENT

WDD:BBM:mlr

cc: Game Division
cc: Fish Division
cc: Warren White, SPC

COMMENT LETTERS

5

ARCH MINERAL CORPORATION
WESTERN DIVISION
PERMIT GROUP
P. O. BOX 490
HANNA, WYOMING 82327
May 7, 1982

Donald H. Sweep, District Manager
Bureau of Land Management
Rock Springs District
P.O. Box 1869
Rock Springs, Wyoming 82901

Dear Mr. Sweep:

Arch Mineral Corporation is pleased to be able to comment formally on the Department of Interior, Bureau of Land Management, Environmental Assessment of Coal Preference Right Lease Applications for Beans Spring, Table and Black Butte Creek Projects, WY-049-EA 82-37, located in Sweetwater County, Wyoming dated March, 1982. Our comments are in response to your letter of April 10, 1982 and are intended to be responsive to your May 10, 1982 closing date.

As discussed in our April 20, 1982 meeting, Arch Mineral is concerned about the timely approval of our preference right lease applications (Beans Spring) and are willing to assist the BLM, Wyoming Game and Fish Department, USGS, and others to accomplish that goal by December, 1982. To this end, we conducted with your staff on April 30, 1982, a meeting to discuss the Mule Deer Census, Winter 1981-82 Study, accomplished cooperatively by Arch Mineral, BLM, and Wyoming Game and Fish. It is our desire to have this report be made a formal part of the EA. Official copies of the report were transmitted to your office by letter dated April 15, 1982.

Arch Mineral wishes to compliment the work of BLM in development of this EA and the development of the site-specific analysis which provided the background for the assessment. It is our opinion that the EA presents a fair and balanced approach to the recovery of our nations natural resources as well as provides protection to our environment in southwest Wyoming. As in the past, Arch Mineral Corporation will continue to conduct dialogue with the BLM as the PRLA process moves forward to the request for final showing phase and we in industry will keep an open mind to the needs which we all mutually share. Some of the generalized requirements of the EA as apply to the Beans Spring PRLA's could appear restrictive in nature. However, details would be inappropriate at this time and would more effectively be discussed among all parties on a site local condition as final plans are developed for mining operations and reclamation. Additionally at this time it would appear that Arch Mineral's preference for a transportation network would be to use rail to move the coal from the Beans Spring area to the main line of the Union Pacific Railroad.

We are vitally interested in coal production in this part of Wyoming to meet the future energy needs of the region and our country. Again we compliment the BLM for its efficiency in the conduct of the Federal land use process to date and wish to express our thanks for your staff's attitude and professionalism in development of this EA.

Sincerely,

John S. Wilkes III
Manager, Government Relations
Western Division

JSW/cac

cc: L.E. McKinney
S.A. Glen
R. Shanks
J. Cully
R. Fala
C. Herold
E. Langrand
File

6



Sierra Club Northern Great Plains Region

Bruce Hamilton
Regional Representative
P.O. Box 1078
Lander, Wyo. 82520
(307) 332-9824

Rose McCullough
Assistant Representative
715 South 14 St.
Lincoln, Neb. 68508
(402) 435-7023

May 7, 1982

Dean Stilwell
BLM-PRLA Team Leader
Box 1864
Rock Springs, WY 82901

Dear Dean Stilwell,

I would like to submit the following comments on the environmental assessment of PRLAs for Bean Spring, Table and Black Butte Creek Projects, WY-049-EA82-37.

Sierra Club members in Sweetwater County are concerned that issuing these PRLAs will have a serious, long-term adverse impact on Southwestern Wyoming wildlife. We are especially concerned with the proposal to waive almost all of the unsuitability determinations with the vague promise that there will be adequate mitigation. In December 1981 the BLM published its final coal decisions for the Salt Wells and Big Sandy Resource Areas. Now, less than six months later, the BLM appears to be reversing its earlier assurances to the public that these tracts would be deemed unsuitable for coal leasing and mining. The leases include crucial deer winter range, elk calving areas, prairie falcon and golden eagle nest sites, and sage grouse crucial habitat.

Given the present soft coal market we fail to understand why we should be leasing fragile public lands with known, real conflicts.

There was no decision notice and finding of no significant impact (FONSI) accompanying the EA. Have you reached a decision? Given the highly controversial nature of this proposal I urge you to prepare an environmental impact statement and reexamine your proposal to reverse the unsuitability determinations.

Sincerely,

Bruce Hamilton

Bruce Hamilton
Regional Representative

"Not blind opposition to progress, but opposition to blind progress."

COMMENT LETTERS



SWEETWATER COUNTY WILDLIFE ASSOCIATION

RECEIVED

MAY 12 1982

Dean Stilwell
Coal EA Team Leader
Bureau of Land Management
P.O. Box 1869
Rock Springs, Wyoming 82901

These comments are offered by Sweetwater County Wildlife Association and pertain to the Environmental Assessment of Coal Preference Right Lease Applications for Beans Spring, Table and Black Butte Creek Projects.

It seems unlikely that any of these proposed projects are economically feasible, given the host of environmental impacts that must be mitigated and taking into consideration those that cannot be mitigated.

The Beans Spring project is located in the heart of critical habitat for mule deer and antelope summer range. The canyons that would be strung with rail lines provide crucial migration routes for both deer and antelope.

This area used to support many times the numbers of deer that are present today. Many of our members hunt deer in this area and for many years have questioned management that has allowed deer numbers to dwindle.

During our involvement in the Salt Wells EIS we questioned whether the problems in this area were related to overgrazing. From the few studies we have read it appears that abuse of the habitat through overuse is the largest factor limiting numbers of deer in this area.

To further impact present conditions with a huge surface coal mine, railroads, and related activities, will surely decrease deer numbers in this area and impact other species of wildlife. None of the proposed mitigating measures will assure that deer numbers will not decrease. In fact, given the topography of the PRLA area, it seems likely there would be no viable deer herd in the area once mining begins.

Since the need for leasing more coal is highly debatable we believe that multiple use values that would be destroyed by mining this area should take precedence.

Table Project:

Scenic, cultural, and wildlife values found in the Cedar Canyon area far outweigh any benefit this country would derive from surface mining the area. The concentration of raptors alone precludes this area from mining. Not to mention habitat that is critical to mule deer and elk.

Some areas lend themselves to measures that mitigate impacts. The table Project is not one of them. There is not way to mitigate loss of nesting habitat for raptors. Once the birds are moved out, they have no place to go. All the other niches are full. So in effect, they cease to exist.

Because of hundreds of minerals related impacts in this part of Wyoming, habitat that was critical before is even more so today. For these reasons

comments on coal EA, SGWA

Pg. 2

we oppose allowing any mining in the Cedar Canyon area. And we support designation of this area as an Area of Critical Environmental Concern.

Black Butte Creek:

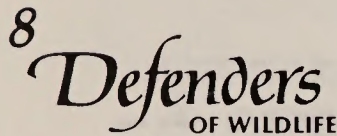
If Peabody Coal Company agrees to mitigating measure proposed by BLM, and if studies prove these measure will mitigate discussed impacts, we do not object to this mine.

These comments received unanimous approval from the Board of Directors of Sweetwater County Wildlife Association.

Thank you for inviting our comments.

For the Board,

Alvin Walker
Alvin Walker, Secty.



RECEIVED

MAY 12 1982

Dean Stilwell
Coal EA Team Leader
Bureau of Land Management
P.O. Box 1869
Rock Springs, Wyoming 82901

The following comments are offered by Defenders of Wildlife in reference to the ENVIRONMENTAL ASSESSMENT OF COAL PREFERENCE RIGHT LEASE APPLICATIONS FOR BEANS SPRING, TABLE AND BLACK BUTTE CREEK PROJECTS.

Only recently, 1.5 billion tons of federal, Powder River Basin coal was sold, which makes leasing of only 44.9 million tons of coal in this proposal rather pale by comparison. However, it is not necessarily the amount of acreage leased that determines if impacts from mining outweigh environmental considerations, but rather, the location of those acres.

Two of the proposed mines, Beans Spring and the Table project, are located in areas that are critical to the survival of several species of wildlife. There is simply no way to mitigate impacts of mining on the habitat or wildlife in these areas.

If we believe the 'purpose' of this proposal is a statement of fact, then we must assume there is a crying need for much more coal leasing, now and in the immediate future. From studies and projections I have read, it appears we have already sold enough federal coal to supply the domestic market, and overseas market, for decades to come.

Since the current demand for western coal is rather soft (cutbacks in production; underground mines closed) careful consideration should be given to economic realities that could result in a mine being opened, then forced to close, with resultant impacts on the environment serving no real purpose.

Table Project:

Environmental considerations far outweigh energy that would be produced with Table Project coal. This relatively small area contains important cultural, scenic, and wildlife values that surely supersedes value of the coal resources.

Impacts on the concentration of raptors that nest in this area cannot be mitigated. The old-saw that insists - there is plenty of room out there, the birds can set up housekeeping somewhere else, is a fallacy. Wherever there is somewhere else it is already occupied by these birds-of-prey. Only certain areas provide necessary components (nesting habitat - availability of prey species - seclusion) for successful propagation of our raptors. Whenever these areas are impacted the birds do not go somewhere else. They simply cease to reproduce, and cease to exist.

EA coal comments/ Defenders

Pg. 2

The fact that part of the PRLA Table Project area is under consideration for ACEC designation further emphasizes that values are present that are not compatible with surface mining of coal.

Further, cumulative impacts on wildlife and other multiple-use values from the myriad of mineral related activities occurring in southwest Wyoming make it imperative that each new project be evaluated as a part of the whole and not as a separate entity.

Environmental impacts resulting from the proposed Table Project that cannot be mitigated should cause Rosebud Coal Sales Company to reconsider their PRLA application. Not only would the public image of Rosebud coal be enhanced, it would save expensive and time consuming litigation if mining is allowed in this area.

Beans Spring Project:

The Beans Spring area contains critical habitat for mule deer. Counting deer in this area and relating these surveys to what the habitat can support can be quite misleading, since the habitat has been badly abused. During the 1950's, the 'Gap' area supported three to four times the numbers of mule deer presently found in this area.

For five years, in the mid-50's, I lived at Titsworth Gap and can attest to the numbers of deer. I remember bag limits, for one hunter, of from five to seven deer. Deer by the truckloads were hauled past my house. And I spent many a cold night pulling stuck hunters out of snowdrifts with a Power Wagon.

Based on my knowledge of this area, at one time there were probably too many deer, along with too many cattle and sheep. The habitat took a beating. I believe BLM studies are finding that overgrazing is occurring yet today in this area.

No doubt, through careful management, the Beans Spring habitat can be returned to a condition that will support larger numbers of deer and other wildlife, along with more forage for livestock. However, this cannot be accomplished at the same time surface mining of coal is occurring in the area. In fact, mining will have just the opposite effect, despite any mitigation that might be imposed.

Canyons where railroads would be constructed provide vital migration routes for deer and other wildlife. Activities related to the mine would impact a much larger area than the mine itself. Antelope migration would surely be disrupted by the railroad and mine, and the summer range would likewise be impacted.

Given the cost of mitigating environmental impacts, revegetating a very stubborn area, and taking into consideration impacts that cannot be mitigated, it seems unlikely this project could be economically feasible.

Black Butte Creek Project:

Providing that suggested mitigating measures are agreed to, we believe that this project has merit.

Thank you for inviting these comments.

Dick Randall
Dick Randall
North central representative
Defenders of Wildlife
Box 507
Rock Springs, Wyoming 82901

COMMENT LETTERS

10

Cultural Resources--The following is a summary of the cultural resources section of the EA:

page 36--

Relatively little is known about the cultural history of the PRLA's under consideration. This is particularly true in regards to the prehistory. The potential exists for prehistoric remains of all ages starting with paleoindian to be found in areas covered by these PRLA's. The inventory requirements (class III) as outlined in the proposed mitigation action needs to be stressed to the companies as early as possible in the leasing action. Communication between the companies, BLM, DEQ, SHPO and OSM with regard to survey requirements, design, procedures and standards is imperative. Early planning and management will alleviate later problems for all concerned parties.

Vegetation

page 16--

The last paragraph is discussing forb and shrub species, then lists grass species as suggested forb and shrub species.

page 32--

Affected Environment -- vegetation description should be expanded slightly to include the major dominate species, production and cover and past impacts on the communities. Condition of the present communities should be discussed.

page 49--

Environmental Consequences -- vegetation -- the present vegetation will be completely destroyed. What are the environmental consequences? Are existing methods of revegetating the area available and are these methods successfully being used on adjacent mines? Can the cover that is necessary to protect the site be re-established? The report indicates it will take 50 years after initial reclamation to establish a stable community. Is this a goal of reclamation? If use of the revegetated areas is permitted, will the community ever become "stable"?

The vegetation sections of the report should be expanded slightly so the reviewer is provided a minimum of information dealing with this subject.

Socioeconomics--The following discussion identifies additional information that is necessary. We suggest inclusion of this information as lease discussions and requirements.

page 38--

The baseline information appears to be adequate although pages 40-42 are missing. Page 51 states that 150 workers will be required to construct the proposed railroad facilities. There is no discussion of housing requirements for these workers in the text or in Table III-4.

page 55--

"Infrastructure and Social Services" does not quantify the public service and facility needs as a result of the projects. There is no discussion of whether or not Sweetwater County and impacted communities will have adequate revenues to accommodate the increased population attributable to the mines. The absence of this information makes it impossible to determine the significance of impacts related to the mines.

(3) A statement of the immediate impacts and long term effects on mining on transportation facilities within the state, including:

- (i) the estimated transportation mode(s), route(s), and frequency of trips for the extracted resource,
- (ii) contemplated construction of transportation facilities,
- (iii) the estimated effect of any truck movements on the rate of roadway pavement deterioration, on the design life of the transportation mode, on the level of service repair and on overall safety to the motoring public, and
- (iv) a discussion of those measures which can mitigate impact on those transportation modes such as proper signing, lighting, and design or access to and from public roadway(s).

(4) A statement of the perceived roles and responsibilities of the lessee, the affected local governments, and the State of Wyoming, relating to the technical and financial needs of the affected communities.

A determination for completeness will be made by the BLM. The Bureau will make this impact mitigation study available to the State and local governments.

Air Quality

Chapter 11 -- need a discussion of baseline climate and air quality in the area of the proposed actions.

Chapter 111 -- need a discussion of the impact of the proposed actions on air quality.

We recommend that the above information be requested of the applicant as a lease requirement.

If any questions and/or comments that arise on the contents of this letter, feel free to contact Ron Naten (303) 837-5656, of my staff.

Sincerely,

Allen D. Klein

Allen D. Klein
Administrator
Western Technical Center

There is no discussion of where the workforce will come from, i.e., in-migration vs. existing residents. A discussion of current unemployment rates and trends would help to determine the proportion of newcomers to the area.

All Colorado PR coal leases within the Green River-Nams Fork Region contain a standard stipulation requiring the lessee to submit to BLM concurrently with the filing of its mine plan, a socioeconomic and transportation impact mitigation study. The attached standard stipulation should be included in this action to insure consistency within the Region.

Finally, there is no discussion of socioeconomic impacts under "Unavoidable Adverse Impacts" on page 72.

(c) The lessee shall prepare and submit to the BLM concurrently with the filing of its mine plan, a socioeconomic and transportation impact mitigation study, concerning offsite aspects of the proposed development, which will include a factual statement of the following:

- (1) The estimated number of employees the specific lease operation will require during its phases of construction and operation; the estimated multiplied population attendant to that employment; and where that population is anticipated to reside.
- (2) Based on information acquired in consultation with state and local government, an analysis of the estimated effect of that population influx upon the county and community infrastructure, including:
 - (i) the transportation system at the county and local level,
 - (ii) the domestic water requirements,
 - (iii) the domestic sewage treatment facilities and collection system requirements,
 - (iv) the requirements on the educational facilities,
 - (v) the requirements the new population will impose upon the fire and police protection systems
 - (vi) the requirements that the additional population will make on local government service systems, with primary emphasis upon the normal public works of both county and municipal governments,
 - (vii) the requirements on the human service system,
 - (viii) the requirements imposed upon the parks and recreation system, and
 - (ix) an estimate as to the need, by type and amount of housing which the new population will require on a community by community basis.

COMMENT LETTERS



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Game and Fish Department

CHEYENNE, WYOMING 82002

EARL M. THOMAS
DIRECTOR

June 2, 1982

ELIS 971/L2 BLM EA For
PRL Applications
Beans Spring, Table and Black
Butte Creek Projects.

Mr. Warren White
State Planning Coordinator's Office
2320 Capitol Avenue
Cheyenne, Wyoming 82002

Dear Warren:

The following comments are being made in addition to those furnished in our previous letter of May 4, 1982 regarding an Environmental Analysis of the impacts of developing coal in three areas. The areas involved are Black Butte Creek, Table Project and Beans Spring.

Black Butte Creek

Page 15 - Wording in the Water Resource section is much too vague. If it is determined that outside water sources are becoming contaminated, more stringent steps should be implemented to offset undesirable conditions.

Page 16 - The Reclamation section is relatively weak. Granted it is important to get vegetation reestablished on these sites to reduce erosion but desirable species should be planted. Sagebrush is not mentioned as a potential species in the section. The only mention of shrubs is bitterbrush and it is listed as a potential species if long-term goals dictate a need for it. Reclamation as proposed will be difficult as it is extremely difficult to get shrubs established once grasses and forbs have been established. This area is used by mule deer in the winter months and by antelope yearlong. Shrubs must be included in the reclamation of this area if it is to be of any use to wildlife. Native species should be used in all reclamation efforts.

Page 21 - The Patric Draw Haul Route is preferred over the building of a new rail spur and loading facility. If the rail spur is selected, the current loading facilities at the Black Butte Mine should be utilized.

Page 27 - If reclamation on alta is going to be used as mitigation for potential loss of grouse habitat then it should include sagebrush as an important species for revegetation. Sagebrush is not mentioned. What impacts are expected to occur for antelope and mule deer? These species are important in habitats of the area yet they are not mentioned.

Water developments will not mitigate habitat loss to grouse since Black Butte Creek runs down the center of the proposed lease. If plans exist to dry up the creek, then water developments are needed. The creek should be maintained by establishing a 1/4-mile buffer on either side of it. This will protect the riparian system and also ensure water for wildlife.

Page 36 - The only species of wildlife mentioned are raptors, yet all of the proposed mitigation is geared towards sage grouse. The mitigation standards are not complete as no mention is made of big game.

Page 36 - It is not clear how the loss of livestock AUMs will be mitigated. If use by livestock is not reduced, wildlife AUMs will be lessened.

Page 47 - Due to the aquifer recharge system that is in this area, water is an important issue. More stringent controls are needed to offset potential negative impacts.

Page 49 - Adequate reclamation is the issue on this site. Reclamation as proposed is inadequate for wildlife.

Page 65 - Proposed Mitigation - Black Butte Creek should not be disturbed. We strongly recommend against the rerouting of the creek.

Page 70 - Again, sage grouse is the main species that reclamation is being geared towards. Habitat needs for big game and other species should be included; this area is important antelope winter range.

None of the impacted area is considered critical wildlife habitat. The Cooper Ridge mule deer winter range complex lies just to the south and west of this site. No activity should occur on this winter range.

The potential impact of this mine on the migration of deer and antelope from the region to the east to the winter ranges on the western side of the mine should be considered. It was also stated in the EA that this alternative will ensure logical progression of mining towards the Beans Spring area. This will mean the

potential loss of important winter range for both deer and antelope. We prefer no development south and west of this site.

If the reclamation standards are upgraded to ensure that wildlife habitat can be reclaimed, then overall impacts from this mine should be minimal.

Table Project

Page 14 - There is no mention of reestablishing the native habitat to its original characteristics. The proposed disturbed sites will be "revegetated" (via modern farming techniques) with a seed bed mixture of unknown number or type of plant species. The plant species this company proposes to revegetate the disturbed areas on public land with should be included.

The BLM states on page 33 of this EA "The mining on 2,233 acres would affect three different vegetation types: Sagebrush (1,390 acres); Nuttall's saltbrush (686 acres); and Juniper (157 acres)." Does "affect" mean total or partial removal?

Page 50 - "Deer. Vegetation loss to all mining operations would reduce range carrying capacity for deer by about 504 deer AUMs or 42 animals. Approximately 1,200 acres of "important" winter range would be lost." This statement appears to address only those deer which inhabit this area on a yearlong basis. If the impacts occur on winter range, which receives five months of use (not twelve), then the habitat for 101 deer (not 42) would be lost.

Page 50 - "Elk. Mining would remove important browse and cover from about 1,200 acres of elk winter range. Human activity disturbance to elk varies from 0.2 to 0.9 of a mile depending on slope and terrain. Therefore, an additional 3,000 acres of elk winter range would be lost around the PRLA. Disturbance would also displace elk calving activities from the Cedar Canyon area."

"Raptors. Strip mining and associated activities would destroy 14 nesting sites and would have detrimental effects (possibly abandonment) on 22 additional nests."

The BLM also states on page 24 - "Portions of the Table PRLA were found to be unsuitable for surface mining under criteria 2, 11, 13, 14, and 15 and unacceptable due to multiple use conflicts (BLM 1981b)."

The BLM and Wyoming Game and Fish Department are in complete agreement with this statement. However, "exceptions" have been applied to criterion 15 which removes it from the unsuitability list. The "exceptions" are explained by the following:

"The area can be leased for surface mining provided that the surface management agency and the appropriate state agencies are satisfied with mitigating measures developed to protect deer habitat and insure long term survival." (Memo from Sally Baverly, Acting Area Manager, BLM to Don Sweep, District Manager BLM 9/11/81).

The Wyoming Game and Fish Department is not satisfied with the proposed mitigating measures which apply to criterion 15. We feel the proposed mitigation measures for reestablishing the native habitat, in lieu of the expected losses determined by the BLM, are inadequate. Mitigation measures for wildlife on page 70 relate only to the deer herd. The BLM specifically stated that a total of 4,200 acres of elk winter range would be lost. Mitigation measures which ensure the long-term survival of elk are absent.

Given the above statements, we agree with the BLM personnel that the Table Project Area is unsuitable and unacceptable for surface mining.

Beans Spring

Chapter I Description of the alternatives including the proposed action, pp. 1-27. Company Proposed Mitigation, p. 6 - Beans Spring Mine, pp. 10-13 - Protection of Wildlife and Other Natural Scenic Resources, pp. 11-12. Very little mitigation for wildlife is mentioned in this section.

Reclamation, pp. 12-13. There is no reclamation of the vegetation of the mine site specifically for wildlife. The reclamation proposed is just a revegetation of the area.

Transportation Routes for Beans Spring Mine, pp. 6-7, 17, 19-21. For any transportation route, whether railroad or haul road, the right-of-way required for construction and maintenance would be lost wildlife habitat. This loss could not be adequately mitigated or rehabilitated for the wildlife species present in the area.

Chapter III Environment consequences, pp. 43-73 - Proposed Mitigation, pp. 63-71 - Beans Spring Project, pp. 64-69 - Vegetation, pp. 65-66. It is questionable if the vegetation can be rehabilitated to support the desired wildlife population called for in the Department's management plan.

Wildlife, pp. 66-69. The potential for mitigation of the lost wildlife habitat from the Beans Spring Project is questionable. No consideration is given to the mitigation for the loss of the area to the public for hunting and recreation.

We appreciate the opportunity to comment. Please contact us if we may be of further help.

Sincerely,

W. DONALD DEXTER,
ASSISTANT DIRECTOR, OPERATIONS
WYOMING GAME AND FISH DEPARTMENT

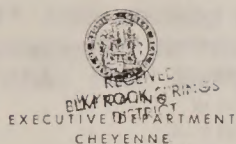
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cc: Game Division
cc: Fish Division

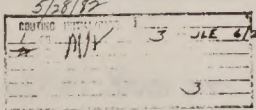
COMMENT LETTERS

12

ED HERSCHLER
GOVERNOR



May 27, 1982
A 10/20/82
DM



Mr. Maxwell T. Lieurance
State Director
Bureau of Land Management
P. O. Box 1323
Cheyenne, WY 82001

Dear Mr. Lieurance:

Several state agencies have reviewed the Bean Springs, Table and Black Butte Creek Preference Right Lease Application environmental assessments. Their comments are enclosed for your review and consideration.

The information which has been provided is, in most instances, too general to determine the type of impacts that can be anticipated by coal development on these tracts. Further, the environmental assessments fail to recognize or mention that other coal mining activity is taking place in the general proximity of the PRLA's and that there will be cumulative effects. On a directly related note, the environmental assessments should mention that Land Use Planning amendments have been developed for the Salt Wells and Big Sandy Resource Areas and the decisions made as a result of these land use plans may affect the economic development potential of these PRLA's, especially the Bean Springs PRLA.

If the Bureau subsequently leases these tracts, the successful lessee should contact the Land Quality Division of the Wyoming Department of Environmental Quality to insure compliance with Wyoming's mining and reclamation laws and rules.

Yours sincerely,
Ed Herschler

BH/wwt

Enclosure

cc: Walt Ackerman

13

THE STATE OF WYOMING



ED HERSCHLER
GOVERNOR

Wyoming Recreation Commission

604 EAST 25TH STREET

CHEYENNE, WYOMING 82002

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Mr. Warren White
Executive Department
Capitol Building
Cheyenne, WY 82002

April 21, 1982

JAN L. WILSON
Director
777-7695

RECEIVED

Dear Mr. White:

The Environmental Assessment of Coal Preference Right Lease Applications (PRLA) for Beans Spring, Table and Black Butte Creek Projects was received in this office April 12, 1982. Thank you for giving the Wyoming Recreation Commission, (WRC) an opportunity to review the report.

In the assessment of the Site-Specific environmental report for the Table project PRLA it is expressed that mining in the area could have undesirable effects on recreation in the Big Sandy Resource Area. The WRC would like to request that these undesirable effects be held to a minimum and that reclamation be pursued as soon as possible after mining efforts have been completed.

The socioeconomic data for Sweetwater County shows a large percentage of population growth over the last several years and projections show these increases will continue. The provision of recreation activities for employees will help achieve improved worker morale which in turn will keep down employee turn-over rates. The WRC feels recreation opportunities in Sweetwater County are rapidly becoming inadequate and it is in the best interest of the coal companies to provide better living conditions with increased recreation opportunities for its workers.

Sincerely,

Alvin F. Bastron
Alvin F. Bastron, P.E.
Chief, State Parks Division

AFB/bab

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THE STATE OF WYOMING



ED HERSCHLER
GOVERNOR

Department of Environmental Quality

LAND QUALITY DIVISION

401 WEST 19TH STREET

TELEPHONE 307-777-7756

CHEYENNE, WYOMING 82002

MEMORANDUM

TO: Warren White
FROM: Robert Dorn
DATE: April 26, 1982
SUBJECT: Environmental Assessment of Coal Preference Right Lease Applications for Beans Spring, Table, and Black Butte Creek Projects

Attached are potential conflicts with the above projects. Some are addressed in the EA but many are not. We will not have time to provide detailed, specific comments because of the large number of potential conflicts.

RD:rjc

Acting Director

WYO-DEQ

Legend - AN = Antelope Critical Range, AR = Archeological Site, C = Canyon Mouse (rare animal), EA = Eagle Nest, EL = Elk Critical Range, H = Historical Site, M = Mule Deer Critical Range, P = Paleontological Site, S = Sagegrouse Critical Habitat, SL = Sagegrouse Lek, T = Tender Fleabane (rare plant)

T13N R103W

Sec 1
2
3
4
5 M
6 M, S

T13N R104W

Sec 1 M, S
2 M, S, H
3 M, S, H

T14N R103W

Sec 7 M
8 M
9 M
10 M
11 M
12 M
13 M
14 M
15 M
16 M
17 M
18 M
19 M
20 M
21 M
22 M
23 M
24
25
26 H

T14N R103W (continued)

Sec 27 M
28 M
29 M, S
30 M, S
31 M
32 M
33 M

T14N R104W

Sec 10 M
11 M
12 M
13 M
14 M, S
15 M, S
22 M, S, AR, H
23 M, S, SL
24 M, S
25 M, S, SL
26 M, S, SL
27 M, S
34 M, S, H
35 M, S, H
36 M, S

T17N R101W

Sec 1 EA
2
3 AR
4 M

COMMENT LETTERS

WYO-DEP
14 Page Two

T17N R101W (continued)

Sec 5 M, AR
6 M
7 M
8 M
9 M, S
10 S
11 S
12
13 S
14 S
15 S, SL
16 S, AR
17 M, S
18 M, AR
19 M
20 S
21 S
22 S
23 S
24 S, SL
25 S
26 S
27 S
28 S, H, AR
29 S
30
31
32
33
34 S
35 S
36 S

T22N R103W

Sec 2
3
4 M, EL, EA, AR

T22N R103W (continued)

Sec 5 M, EA, AR, P
6 M, AR, H
7 M, AR
8 M, C, AR
9 M, EL, T
10 M, EL
11
14 EL
15 M, EL
16 M, EL
17 M
18 M, AR, H
19 M, AR
20 M, AR
21 M, EL, AR
22 M, EL
23 EL

T22N R104W

Sec 1 M
2 M, AN
3 AN
10 AN
11 M, AN
12 M
13 M, AR
14 M, AN, AR
15 AN
22 AN
23 M, AN, AR
24 M, AN

T23N R103W

Sec 31 M
32 M
33 M
34 M
35

WYO-DEP
Page Three

T23N R104W

Sec 34 AN
35 M, AN
36 M, AR

15

THE STATE OF WYOMING
EXECUTIVE DEPARTMENT

Office of Industrial Siting Administration

SUITE 800 BOYD BUILDING CHEYENNE, WYOMING 82002 TELEPHONE: 307-777-7368

MEMORANDUM

TO: Warren White, SPC's Office
FROM: Richard C. Moore, P.E., Director
DATE: April 13, 1982
SUBJECT: EA of PRLAs for Beans Spring, Table and Black Butte Creek Projects

I have briefly reviewed the above referenced environmental analysis. The socioeconomic impact assessment is grossly inadequate due to the use of linearly extrapolated employment numbers. For projects as small as described in this EA, linear extrapolation of employment from a one million ton per year base is extremely questionable due to the economy of scale which is included in the base. Linear extrapolation of railroad spur construction employment is also subject to question. This is particularly evident for the Table Project, where the two-mile-long spur is estimated to require only 10 workers for 2 months.

The proposed mitigation of socioeconomic impact is totally inadequate. Because these projects are small, it is unlikely that they will require siting permits. Therefore, BLM should consult with personnel from O.S.M. to determine appropriate mitigation consistent with the mitigation required by O.S.M. for similar projects.

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